

# TROPICULTURA

## 10<sup>TH</sup> ANNIVERSARY VSF-BELGIUM



DIERENARTSEN | VETERINAIRES  
ZONDER GRENZEN | SANS FRONTIÈRES  
B E L G I U M



Cattle camp in southern Sudan (Roger Job, 1997).

## SPECIAL EDITION

Editeur responsable/ Verantwoordelijke uitgever:

J. Vercruysse  
Square du Bastion 1A Bolwerksquare  
1050 Bruxelles/ Brussel

Avec les soutiens

de la Direction générale de la Coopération au Développement DGCD [www.dgdc.be](http://www.dgdc.be)  
du Service public Fédéral Affaires étrangères, Commerce extérieur et Coopération au Développement [www.diplobel.fgov.be](http://www.diplobel.fgov.be),  
et de la Région Bruxelles Capitale

Met de steun van

de Directie-Generaal Ontwikkelingssamenwerking DGOS [www.dgdc.be](http://www.dgdc.be)  
de Federale Overheidsdienst Buitenlandse Zaken, Buitenlandse Handel en  
Ontwikkelingssamenwerking [www.diplobel.fgov.be](http://www.diplobel.fgov.be)  
en van het Brusselse Gewest

BUREAU DE DEPOT – AFGIFTEKANTOOR  
BRUXELLES X/ BRUSSEL X



Adapted by Nathalie De Moor, 2005



## EDITORIAL

### INTRODUCTION – 10TH ANNIVERSARY OF VSF BELGIUM

M. Onclin<sup>\*1</sup>

Ladies and Gentlemen,

I am delighted to welcome you to the VSF-Europa Symposium, organised for the tenth anniversary of VSF-Belgium. Ten years of impressive involvement of many men and women. During these ten years, our approach to cooperation has proven to be relevant and valid. And our ideas on development have been built on, step by step. I often say that the most attractive way to go from one point to another is not always in a straight line. And that is exactly how VSF was created. In these first ten years our long journey consisted in a multiplicity of situations, mistakes and failures, victories and successes, and sometimes we found ourselves even going adrift, but where we are now is the result of all this. I am deeply convinced that if today we had to start again, many of us would be willing to retrace the same magical and fascinating path that has taken us here today.

#### Objective of the symposium

Today's symposium aims to emphasize the relation between 'the Earth, the Animals and the People' to better understand the role of livestock farming in sustainable development and poverty reduction. 'The Earth, the Animals and the humankind' are interacting entities. Since time immemorial, animals have helped human beings to live in their environment. Associations like VSF obviously have a key role to play, in raising an objective awareness about the relevance of livestock in sustainable development. At a time when the European Union is launching a child obesity prevention programme, I believe it is only right to ponder over other situations on our planet, which is considered as being a "village". Our field staff and partners appreciate daily the crucial role of livestock in curbing poverty. But their witness-statements, as powerful as they can be, are not enough passed on to the public, to decision-makers, to donors or to colleagues who, in other regions of the world, are experiencing the same situations and difficulties. We are proud to contribute to the global efforts in world poverty reduction.

#### VSF's mission

VSF has set for itself an ambitious mission: "To improve the well-being of vulnerable populations in developing countries, by improving animal health and production". We strongly believe that animals have a leverage effect in helping the world's poor to free themselves from their scourge. Indeed, I can use the words of our Chairman, Mr Bart Balis to illustrate the importance of livestock: "find me a village in Africa where chickens do not scrape the ground, where children do not run after sheep or goats. Show me a savannah with no grazing cattle". One should never forget that most civilisations developed in interaction with land and livestock farming.

#### Evolution of VSF-Belgium

I would like to share with you the fundamental changes our association has undergone in the past years. In 1995, a group of vets, driven by a spirit of international solidarity founded VSF-Belgium and joined VSF-Europa. At the time, we took part in the 'Community Based Animal Health Programme' in Sudan, at UNICEF's request. Our highest priority was animal health. We wanted to treat and vaccinate animals to rapidly increase milk production and save lives by feeding milk to starving children. By developing our activities in the field, listening to our partners' real problems, sharing their experience, observing the local context of intervention countries, pursuing sustainability for our activities, we have realised the need

<sup>\*1</sup>Executive Director VSF-Belgium

Avenue Paul Deschanellaan 36-38, B-1030 Brussels- Belgium

Phone: 32 2 539 09 89 Fax: 32 2 539 34 90

E-mail: m.onclin@vsf-belgium.org

www.vsf-belgium.org

to open our mind. Our top priority – animal health - became the basis of a wider development process. Our role evolved from ‘implementers’ to ‘facilitators’, integrating the partners more in the development process. Attributing a higher priority to capacity building seemed a central issue to get a stronger impact.

### **International solidarity**

Our progress was made possible by willing men and women, who believed in international solidarity and were prepared to put their skills and resources to the service of striving populations. VSF works on the field so that people closely linked with livestock can look at a more optimistic future. Today I would like to express my gratitude to all those committed to a more united world. Nothing would have been possible without our partners. VSF is more than just an association; it is a concept, a philosophy. I thus wish today a wonderful anniversary to all those - North and South - who have made and still make VSF possible. My highest hope is that all the actions launched might shine through time.

*Dr Madeleine Onclin*  
*Executive Director VSF-Belgium*  
*15 th April 2005*



Animal health care services southern Sudan (Roger Job, 1997).

**In 2005 VSF-DZG Belgium celebrates its 10th Anniversary!**



# THE IMPORTANCE OF LIVESTOCK IN THE EU DEVELOPMENT POLICIES

P. Vialatte\*<sup>1</sup>

Ladies and Gentlemen,

Let me begin with a very big „happy birthday“ to VSF. I do hope that many others will follow.

As Madeleine Onclin said, the tremendous achievements VSF has been recording are first and foremost the result of the full dedication of VSF staff, especially those posted in the field, who are carrying out their tasks often in very tough environments. We can pay tribute to all VSF staff for their work.

I have had the privilege to personally witness their very active commitment when, back in the old days. I used to welcome at home in Mali the VSF France pioneers. Then I had the pleasure of working with VSF Belgium and Switzerland in Kenya and later here in Brussels when I was working in DG Development.

The success of VSF in obtaining EC funds for very important projects, for example in Turkana, Kenya, and Southern Sudan, amply demonstrates the quality of the work the organisation has been doing.

VSF has fully understood and continues evolving along the concepts we are all recognising as our European approach, such as this notion of genuine partnership to achieve the Millenium Development Goals, (MDGs) among which poverty reduction is our driving force.

We are veterinarians but we all agree that the ultimate objective we are pursuing is aimed at human beings. In this respect, I fully support what Madeleine said regarding sustainability, training, institutional building, knowledge management, but also decentralisation, human rights, democratisation, fight against corruption.

In other words, beyond the technical issues, we should also look at livestock issues in a broader political, social, economical and ethical context.

First, National policies must be adequate to reach the MDGs. Many African countries are deploying a lot of efforts to make their systems more efficient. But most of the time, livestock issues are not put as a priority area for action by the recipient countries themselves.

It is not surprising because the decision makers discussing the national policies with donors are often from Ministries for finance or planning and are probably not fully aware of livestock issues and their social and economical importance. Sometimes also the “weight” of the rural development or agricultural issues might not be sufficient compared to other tremendous problems these societies have to face such as HIV-AIDS, education, communication, transport, trade, etc.

Therefore it is our role, for all of us, to encourage the adequate structures, including local organisations and constituencies, to advocate to the decision makers for rural development in a broad sense, including livestock, so that it will appear high in their priorities, e.g. in the Poverty Reduction Strategy Papers (PRSPs). Since donors support the implementation of national policies, it is the only way we will be in a position to mobilise resources for this purpose.

Second, I must admit that sometimes in our organisations in Europe, the situation is not so different. The technical dimension is often seen as “out of date”. Therefore most of the time, following the PRSPs, the programming exercises of the donors do not include agriculture or livestock development.

We used to be able to mobilise huge amounts of money for livestock and animal health, as we did a few years ago together with the EU MS when we prepared the PACE programme. But in the present context in the EC and MS, managing to get relatively easily 100M€ would not be possible anymore.

So what can we do about this? This is the issue that is always under discussion either in the EC or with other donors, particularly the MS through the EU Experts Group on Livestock matters in Developing Countries (in which Eric Thys is a very active member) as well as with the other donors such as WB, AfDB, IFAD, FAO, and organisations such as the GFAR, CGIAR, and of course our partners at national, regional and international levels.

In the Commission, we very simply came to the conclusion that we cannot expect decision makers in Europe to change their minds overnight. There are political priorities decided at European level. Nowadays, they are nowadays very much centred on topics such as SECURITY, MIGRATIONS, TRADE, COMPETITIVENESS, FOOD SAFETY, JOB CREATION, ANIMAL WELFARE, etc.

If we want to make sure that rural development, agriculture, livestock, fisheries are considered as priority areas for investments and so contributing to the achievements of the MDGs on the one hand, but also when possible contributing to the achievements of the European top priority policies.

This is a way of also contributing to the coherence, complementarities and coordination of the EU policies, which is compulsory under the Maastricht Treaty.

\*European Commission, DG RTD – International Scientific Cooperation Policy

SDME 1/135, 1050- Brussels - BELGIUM

Tel: +32.2.29.66.336 E-mail: Philippe.Vialatte@cec.eu.int

We started discussing these ideas with our colleagues from the different DGs quite some time ago and only got a very “polite” reply. But things have changed drastically over the last couple of years.

I will only take 2 examples where livestock development can make a difference:

- Starting from the trade priority, we developed the idea that trade of animal products is of paramount importance all around the world and will continue growing as demonstrated by the “livestock revolution”. But to trade products of animal origin, the WTO obligations to be fulfilled are those of the SPS Agreement edited by the OIE. In the Sanitary domain, many of these obligations relate to the surveillance, control, eradication, rapid reaction, preparedness, etc. of main contagious animal diseases. In this way, we have managed to first work very closely with other DGs such as SANCO and to get livestock trade issues well represented in the regional negotiations the EU is preparing with African regions. The role of SPS issues in enhancing trade is also highlighted in the recent Commission’s Communication on policy coherence for development, where the possibility for a “rapid intervention facility” to deal with SPS problems is put forward.
- We have commissioned EFSA to scientifically demonstrate that if the prevalence of main contagious animal diseases could be reduced in regions where they are endemic, i.e. mainly DCs, this would diminish the risk of re-introducing these diseases in OECD countries (reducing therefore the risk of huge consequences of significant importance and cost). The “best” example is FMD in 2001 in Europe which originates from an Asian virus strain. That’s what may happen tomorrow with AI.  
The main instruments missing were appropriate vaccines and diagnostic tools. Therefore we proposed to set up a “technology platform”, one of the important instruments of the next FWP of DG RTD, on global animal health, bringing together private pharmaceutical companies, international organisations and EU MS institutions. This idea was enthusiastically supported by DG RTD and is now a reality.

To conclude I would like to confirm again MO’s statement that we are living in a small village (almost) without borders. Over the last decade all donor agencies have experienced a major downwards trend in funding of livestock development. But now that everybody recognises the interactivity and interconnectivity between regions and countries, this idea of “common interest” could be a way of re-attracting interest from the decision-makers both in Europe and in DCs to invest more in animals for trade and/or food safety reasons, in addition to the achievements of the MDGs.

We shall pursue this approach through the assessment of the European animal health strategy and the preparation of the next SANCO strategy that should take fully into account this international dimension, behind the enlarged European borders.

Finally I would like to stress that VSF people, very well appreciated by the national administrations and donors, have a major role to play: you can discuss with and convince your partners to bring our issues on their agenda when negotiating with donors, and also influence the staff in the donors’ Representation missions to make them understand that talking about trade, for example, often means talking about livestock development.

I thank you in advance for your efforts and for your attention.

*Dr. P. Vialatte*

*European Commission, DG RTD – International Scientific Cooperation Policy*

*15 th April 2005*



Veterinary care Turkana (VSF, 2000).

## ORIGINAL ARTICLES

## Session 1

## LIVESTOCK IN DEVELOPMENT STRATEGIES



Milkwomen in Mauritania (VSF, 2002);



Female animal health workers southern Sudan -Turalei (VSF, 2000).

## CONTRIBUTION OF LIVESTOCK DEVELOPMENT TO POVERTY REDUCTION IN PASTORAL AREAS OF THE HORN OF AFRICA

D. Abebe

Keywords: Livestock, Poverty reduction, Pastoralists, Horn of Africa

### Summary

The role of livestock in socio-economic development of the pastoral communities in the Horn of Africa has been reviewed based on the author's personal experience in the region and the work of others. Livestock are sources of nutrition (milk, meat, eggs), provide economic benefits (through sale of livestock for cash or hiring for drought power), social benefits (livestock are kept and used among pastoral community as a means of social support mechanism

### Résumé

**Contribution du développement de l'élevage à la réduction de la pauvreté dans les zones pastorales de la Corne de l'Afrique.**

Le rôle du troupeau dans le développement socio-économique des communautés pastorales à la corne de l'Afrique a été reconsidéré sur base de l'expérience personnelle de l'auteur dans la région et du travail des autres personnes. Les animaux sont une source

<sup>1</sup>Dawitt Abebe

Technical advisor on CAH system and Livestock marketing support for IPST/AU/IBAR

Address: P.O. Box 1078, None, Addis Ababa, Ethiopia

Phone: 251-1-632012 / 251-9-228382

e-mail: dawit-abebe@hotmail.com

and risk spreading). Although the animals provides a sustainable livelihood to the pastoralists, development of the sector has been constrained from high risk of animal diseases, lack of access to livestock market, conflict and insecurity and lack policy environment that is in favour of pastoralist. An approach to poverty reduction in pastoral area therefore should target the improvement of the livestock sector through addressing these constraints. Various organisations experience in the Horn of Africa showed that community based animal health service, community based conflict resolution and peace buildings, livestock marketing interventions and improvement in policy environment have contributed significantly to the improvement of sustainable livelihood of the pastoralists in the region. Therefore, poverty reduction strategy in pastoral areas of the Horn of Africa should prioritise livestock development interventions.

de nutrition (lait, viande et œufs), fournissent des avantages économiques (au travers de la vente des animaux pour obtenir des devises ou de location du bétail pour la traction), des avantages sociaux (le bétail est élevé et utilisé dans les communautés pastorales comme un moyen d'insertion sociale et d'étalement du risque). Bien que, le bétail constitue un moyen de subsistance pour les pasteurs, le développement de ce secteur a été réfréné par les risques élevés de maladies animales, le manque d'accès au marché des animaux, les conflits et l'insécurité et le manque de police environnementale en faveur des pasteurs. Une approche de la réduction de la pauvreté dans les zones pastorales doit donc cibler l'amélioration du secteur de l'élevage en considérant ces contraintes. Plusieurs expériences d'organismes travaillant dans la Corne de l'Afrique ont montré que le service de santé animale basé sur les communautés, les systèmes de développement de la paix et de résolution des conflits basé sur les communautés, les systèmes d'interventions dans le marché du bétail et l'amélioration des polices environnementales ont contribué significativement à l'amélioration de la subsistance durable des pasteurs de la région. Par conséquent, la stratégie de réduction de la pauvreté dans les zones pastorales de la corne de l'Afrique doit prioriser les interventions en faveur du développement de l'élevage.

## Introduction

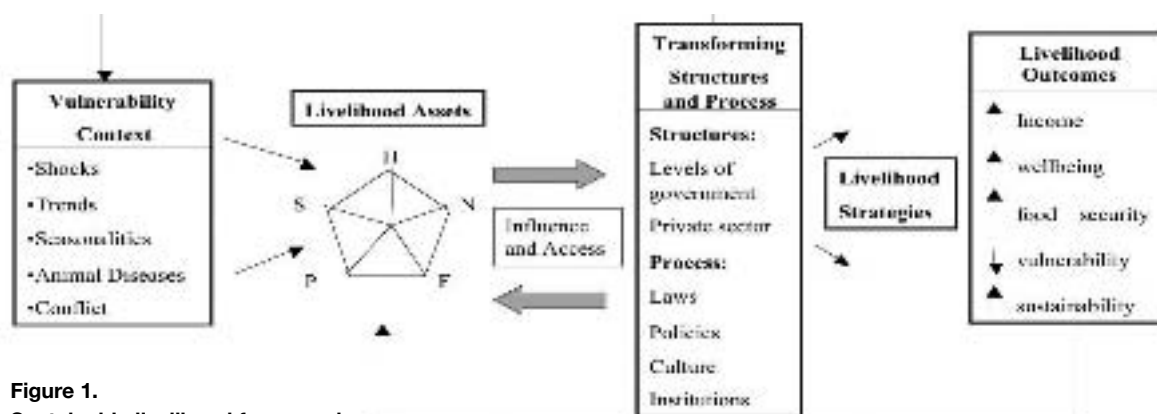
Pastoralists are defined as people who are highly dependent on livestock for their economic and social well-being, rather than on crops or other sources of income. In 1992 pastoral population in the Horn of Africa (Ethiopia, Kenya, Sudan, Eritrea, Djibouti and Uganda) is estimated to around 16.5 million (4). They occupy semi-arid or arid areas which is characterised by low and erratic rainfall resulting in marked spatial and temporal variations in grazing resources. Common future to all pastoral groups is the use of communal grazing land and their mobility which allows them to respond to variations in rangeland conditions, water availability and insecurity. The degree of their mobility varies in response to environmental factors, and not restricted by national borders.

### Livestock and sustainable Pastoral livelihood

Livestock keeping in arid and semi arid areas is a rational approach to utilising scarce vegetation, and livestock are efficient at converting this vegetation into highly nutritious foodstuffs for people. When effectively managed, livestock represent the only ecologically and economically sustainable domestic land use in arid lands. Livestock and livestock related

activities contribute to household gross revenue of over 50 percent, or by a contribution of livestock to overall household food energy of 20 percent or more (6). Fifty-three percent of the region's (Ethiopia, Kenya, Sudan, Uganda, Djibouti & Eritrea) cattle (51 million), 71 percent of the region's sheep (58 million) and 68 percent of the region's goats (50million) are held in pastoral and agro-pastoral production system (6). Livestock production in pastoral agro-pastoral regions account for 53 percent of the total beef production, 70 and 68 percent of sheep and goat meat production respectively, and 33 percent of cattle milk production in the Horn of Africa (6).

The figure 1 portrays the five capital assets on which a household depends: human capital, physical capital, social capital, financial capital and natural capital. Access to all five types of capital is required for a sustainable livelihood. The role of livestock can be described by the various ways it contributes to the poor household's asset base represented by the pentagon. In addition to providing food for the household livestock form a key source of cash, paying for school fees, medical costs and to buy other non-pastoral consumer items. It is the only form of asset accumulation and risk diversification. Livestock also have a very clear role in the derivation of social capital



**Figure 1.**  
**Sustainable livelihood framework**

(adapted from Carney, 1998)

for the individuals and households involved. They can be shared or loaned between relatives, friends and neighbours strengthening social networks and kinship ties. Table 1 shows the various contributions of livestock species to household assets. Sustainable Livelihoods Framework approach can be used to understand and highlight the role of livestock in pastoral livelihoods in the Horn of Africa.

The figure 1 portrays the five capital assets on which a household depends: human capital, physical capital, social capital, financial capital and natural capital. Access to all five types of capital is required for a sustainable livelihood. The role of livestock

can be described by the various ways it contributes to the poor household's asset base represented by the pentagon. In addition to providing food for the household livestock form a key source of cash, paying for school fees, medical costs and to buy other non-pastoral consumer items. It is the only form of asset accumulation and risk diversification. Livestock also have a very clear role in the derivation of social capital for the individuals and households involved. They can be shared or loaned between relatives, friends and neighbours strengthening social networks and kinship ties. Table 1 shows the various contributions of livestock species to household assets.

**Table 1**  
**Contributions of livestock species to the household assets among pastoralist communities in the horn of Africa**

Livestock contribution to household assets					
Species	Human	Financial	Social	Physical	Natural
Cattle	Sources of food, health • Household consumption of milk, meat and blood. • Hides used for clothing and to make household implements.	<b>Sources of income</b> • Form of saving • Income provider through sale of milk, hides and live animal • Exchange for grain	<b>Social safety nets &amp; risk spreading:</b> • Loan, gifts & exchanges in response to different events (Ex. Loss of animal due to drought, Disease outbreak) • Dowry and bride wealth payment • Payment for blood-money compensation.	Drought power for crop cultivation among agro-pastoralists	• Manure for maintaining soil fertility • Dung is used as a source of fuel or burnt to repel flies.
<b>SHEEP &amp; GOATS</b>	• Household consumption of milk and meat	• Income provider through sale of milk, hides and live animal • Exchange for grain	• Loan, gifts & exchanges in response to different events (Ex. Loss of animal due to drought, Disease outbreak)		• Manure for maintaining soil fertility • Dung is used as a source of fuel or burnt to repel flies
Camels	• Household consumption of milk and meat.	• Form of saving • Income provider through sale of milk, hides and live animal • Transport services (hiring)	• Loan, gifts & exchanges in response to different events (Ex. Loss of animal due to drought, Disease outbreak) • Dowry and bride wealth payment. • Payment for blood-money compensation.	• <b>Drought power for crop cultivation among agro-pastoralists</b> • <b>Drought power for transport (e.g. Huts, water)</b>	• Manure for maintaining soil fertility • Dung is used as a source of fuel or burnt to repel flies



**Table 2**  
**Impacts of the major livestock development constraints on household livelihoods**

Impact on livelihood assets					
Constraints	Financial capital	Human capital	Social capital	Natural capital	Physical capital
<b>Animal disease</b>	<ul style="list-style-type: none"> <li>Reduced livestock asset &amp; income from livestock</li> <li>Increase in production cost due to control costs.</li> <li>Reduced income from transport and traction activities.</li> <li>Reduction of market opportunities.</li> </ul>	<ul style="list-style-type: none"> <li>Zoonotic diseases:               <ul style="list-style-type: none"> <li>Reduce human productivity &amp; quality of life,</li> <li>Incur cost of treatment,</li> </ul> </li> <li>Reduced supply &amp; consumption of livestock products affects:               <ul style="list-style-type: none"> <li>The health of individual, and the future human capital.</li> <li>Community development</li> </ul> </li> </ul>	Weakening & loss of traditional supporting mechanisms and safety net in time of crises.	Reduced availability of manure in agro-pastoral areas	Reduction in traction & transport capacity
<b>Conflict</b>	<ul style="list-style-type: none"> <li>Impair access to market for sale of livestock &amp; products</li> <li>Reduced livestock asset due to raiding.</li> </ul>	<ul style="list-style-type: none"> <li>Displacement &amp; loss of human life.</li> <li>Reduced benefit from livestock asset.</li> </ul>	Weakening & loss of traditional supporting mechanisms	Under utilisation of grazing land & water sources "no-man land"	Reduction in traction & transport activity
<b>Lack of access to livestock market</b>	<ul style="list-style-type: none"> <li>Reduced cash income from sale of animal.</li> <li>Reduced livestock input.</li> <li>Loss of livestock asset during drought</li> </ul>	Inability to pay for services (health, education etc) & to buy non-pastoral consumer items affecting future human capital.		Over grazing & range degradation  Lack of enough pasture during drought	

### Constraints faced by pastoralists and its impact on their Livelihood?

Despite the fact the livestock form the bases for human well-being from both social and economic perspectives, and are the resources which pastoralists aspire to own and develop, the livestock keepers faces numerous constraints in the rearing of their livestock. Within the livelihood framework, the impact of these constraints can be described by the various ways it affects the pastoral household's asset bases, which includes (see table 2 for details):

#### 1. Animal diseases

Pastoralists face high risk from animal diseases, because of mainly two reasons: first, there are several diseases in the region and the mobility based livestock production system poses a high risk of spreading diseases. Secondly, there is poor disease control due to the fact that (a) the pastoralists live in remote areas where the services were not available, (b) poor government's capacity to provide services, and (c) poor pastoralists cannot afford the services. Consequently, pastoralists have less capacity to cope with animal disease and thus damaging since it threatens the only household's asset base available.

#### 2. Selling livestock and their products

Pastoralists in the Horn have been hindered in their access to markets due to remoteness, poor infrastructure, and lack of contact with livestock traders/exporters, insecurity/banditry, high government taxes and fees levied at every step of the marketing chain, high transport costs and unofficial fee requested at every check points. Lack of access to markets for the sale of livestock and livestock products reduces the market value of livestock and constrains the ability of pastoralists to convert livestock assets into cash and other physical assets (1).

#### 3. Conflict and insecurity

Pastoralists in the horn of Africa greatly suffer from chronic conflict and insecurity provoked by traditional cattle raiding and competing for access to grazing resources. Among several specific factors increasing the risk of such conflicts between pastoralists includes: increasing small arms proliferation; weakening and undermining of traditional governance systems; inappropriate development policies persuaded by government, and inappropriate land tenure policies & undermining traditional natural resources management system. In addition to considerable human and material loss and huge displacement of pastoral

people from their traditional homelands conflict and insecurity disrupts pastoralists' movement and access to grazing and water sources. It also inhibits access to markets for sale of livestock and livestock products as well as for livestock inputs. The most chronic inter-clan and intra-clan conflict in the horn is depicted in figure 2 below.



Figure 2.

#### Chronic conflicts between pastoralists in the Horn of Africa

Pastoralists are the most marginalized and disadvantaged in their relationships with policy-makers because of lack of understanding of pastoral production system and wrong perceptions and analysis of pastoralism. These includes:

- Pastoralism is inefficient and has very low productivity. Sedentary cattle raising is more productive than mobile system.
- Pastoralists need to settle to benefit from services.
- Mobility is inherently backward, unnecessary, chaotic and disruptive
- Pastoralism causes over-grazing and degradation of rangelands.
- Pastoralists do not take care of the land because the herder has no incentive to limit the number of animals (the so-called 'tragedy of the commons').
- Pastoralists do not sell their animals; they prefer to accumulate animals.
- Pastoralists contribute little or none to national economy.

Consequently, pastoralists have never been adequately represented in decision-making process in issues affecting their life in general. The Poverty Reduction Strategy Paper (PRSP) document and the process followed by countries in the Horn is a recent a phenomenon in which marginalisation of pastoralists and the livestock sector in particular has been demonstrated once again. Livestock sector was generally under-represented in the PRSP process and output document (2). Regional expert consultation workshop on livestock and PRSP has identified weak perception and identification of stakeholders on the

contribution of livestock towards poverty reduction; data, information and research gaps related to livestock, lack of capacity, marketing issues and policy constraints as some of the constraints for inadequate representation of livestock development in PRSP (5).

#### Livestock development as a poverty reduction strategy

Poverty can be reduced through, amongst other things, sustainable improvements in people's livelihoods. Where sustainable livelihood defined as "capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stress and shocks and maintain or enhance its capabilities and asset both now and in the future, while not undermining the natural resource base"(3).

As described by Carney (3) sustainable livelihoods are derived from access to five types of assets: natural, physical, financial, human and social capital. The greater the access to these different types of asset the more secure is livelihoods. An approach of improving pastoral livelihoods should aim to increase acquisition of livestock and livestock products, protect and develop the livestock assets, as this is their key asset base. In terms of livelihood outcomes, improvements in livestock production have the potential to generate more income, increase social well-being, reduce vulnerability, improve food security and encourage more sustainable use of natural resources. Pastoral livestock system should be viewed as a national resource that can contribute towards both national economic growth and local community development. Consequently, poverty reduction strategies need to prioritise livestock development activities in pastoral areas. Therefore, interventions that overcome constraints outlined above and enhance contributions of livestock to livelihood strategies will have a positive impact in poverty reduction.

The key interventions which have demonstrated successful result in terms of improving pastoral livestock production, and thus need to be considered as a poverty reduction strategy includes:

- *Improved animal health through community-based approaches:* Increasing a household's own supply of livestock products for home consumption is a priority strategy in an effort to ensure food security in pastoral areas. To this effect, addressing animal health need is high in the priority list of the pastoral communities. Therefore, provision of basic animal health services should be a priority in poverty reduction strategy in pastoral areas. Community based animal health delivery system has been particularly successful in reducing livestock mortality and morbidity from common diseases, and thus providing sustainable livelihood for pastoral households. Personal observation in southern Sudan, Turkana (Kenya), Afar, Somali

and south Omo (Ethiopia) shows that community-based approaches to animal health delivery is essential if the pastoralists, particularly the poor to have access to animal health services.

- *Livestock marketing initiatives:* improving access to and enhancing pastoralists participation in livestock marketing can secure better income and welfare, and thus sustain the livelihood of the poor livestock producers. The use of market could help pastoralists mitigate livestock asset loss as a result of drought and to promoting environmentally sound natural resources management system. Livestock marketing initiatives based on formation and support of pastoral livestock traders associations is an appropriate strategy to enhance pastoralist participation and benefit acquired from livestock marketing. This has been demonstrated through the work of VSF-Belgium in Turkana District (Kenya) and IPST/AU/IBAR in Borena (Ethiopia). Some of the strategies that should be considered to improving livestock marketing and thus can be integrated in poverty reduction strategy includes: strengthening local (pastoralist) livestock marketing associations, enhancing pastoralists awareness on drought cycle and timely off-take, creating linkage between pastoralists & livestock traders/exporters and facilitate coordinated effort of stakeholders involved in livestock marketing improvement.
- *Conflict Resolution:* conflict resolution and peace building activities should be mainstreamed in all governmental and NGOs development assistance in pastoral areas in order for pastoralists to

benefit from livestock asset. Community based peace building and conflict resolution initiatives facilitated by VSF-Belgium, AU/IBAR, ITDG and other partners in the region is successful in bringing community members from different pastoral groups and government officials to meet, discuss and resolve disputes. As a result, access to dry season grazing land in areas along the Turkana & Karimojong border improved and return of several stolen animals between Turkana & Karimojong, Turkana & Toposa and Turkana & Merille have been facilitated. However, a more harmonised and organised interventions addressing the specific underlying causes of conflict is needed at a regional level in order to establish sustainable peace among the conflicting groups. Some of these includes:

- Improving system for equitable access to scarce resources, particularly access to grazing land and water.
- Control and reduce access to small arms.
- Recognising and supporting customary approach and traditional governance system for conflict resolution and prevention.
- Strengthen and support traditional natural resource management system.
- Policies development should recognise the need and interests of pastoralist communities.
- Improve pastoralist participation in development interventions and decision-making process.

---

## Literature

1. Aklilu Y. & Wekesa M., 2002, Drought livestock and livelihoods: lessons from the 1991-2001 emergency response in the pastoral sector in Kenya. Humanitarian Practice Network. Overseas Development Institute, 40, 1-34.
  2. Blench R., Chapman R. & Slaymaker T., 2003, A Study of the Role of Livestock in Poverty Reduction strategy Papers. Pro-Poor Livestock Policy Initiative (PPLPI) Working Paper N°1. FAO, p.
  3. Carney D., 1998, Sustainable Rural Livelihoods: what contribution can we make? Department for International Development, London. ([www.dfid.gov.uk](http://www.dfid.gov.uk)).
  4. Catley A., 1999, The heard instinct: children and livestock in the Horn of Africa, save the children – UK, working paper.
  5. IPST/AU/IBAR, 2005, Report on Regional expert consultation workshop on livestock and Poverty Reduction Strategy Papers held from the 16<sup>th</sup> to the 18<sup>th</sup> of January 2005 at the Mount Kenya Safari Club, Lilian Towers, Nairobi, Kenya (Unpublished report).
  6. Knips V. 2004, Horn of Africa: Review of the Livestock Sector in The Horn of Africa (IGAD Countries). Livestock Information, Sector Analysis and Policy Branch (AGAL), FAO.
-

# SUPPORTING ENDOGENOUS LIVESTOCK DEVELOPMENT (ELD): AN ALTERNATIVE VISION OF LIVESTOCK DEVELOPMENT FOR THE POOR

K.V. Hooft<sup>1</sup> & J. Wanyama<sup>2</sup>

Keywords: local knowledge, endogenous, livestock development, poor livestock keepers

## Summary

Livestock husbandry systems are changing quickly throughout the world with industrialized livestock production systems rapidly expanding to developing countries. Though industrialization of livestock production has provided cheap food, poor livestock keepers in developing countries have continually been marginalized in terms of resources and access to markets. Endogenous Livestock Development is a people-centred approach aimed at development of livestock husbandry systems based on livestock keepers knowledge, local resources, innovative strategy and their perception of well-being and improvement. ELD uses other elements that are not focused on in conventional participatory methodology in livestock development. These include: aspects of self-reflection, conscious inclusion of existing institutions, local knowledge and practices, understanding local learning, experimentation and communication and openness towards local practices and beliefs.

## Résumé

### Appui au développement endogène d'élevage (ELD) : une vision alternative du développement du bétail pour les pauvres

La gestion de l'élevage change rapidement à travers le monde avec le système de production industrialisé s'étendant rapidement aux pays en développement. Bien que, l'industrialisation de la production du bétail ait fourni une alimentation bon marché, les éleveurs pauvres dans les pays en développement ont été continuellement marginalisés en terme de ressources et d'accès au marché. Le développement endogène de la production animale est une approche centrée sur l'homme visant le développement de systèmes de gestion de l'élevage basé sur les connaissances des éleveurs, les ressources locales, les stratégies innovatrices et leur perception relative au bien-être. L'ELD utilise d'autres éléments qui ne se basent pas sur la méthodologie participative conventionnelle du développement d'élevage. Cela inclut: les aspects de réflexion, l'inclusion consciente des institutions existantes, les connaissances locales et pratiques, la compréhension du savoir local, l'expérimentation et l'ouverture envers les pratiques locales et les croyances.

## Introduction

The ELD initiative was born out of the concern that, in spite of renewed interest in livestock, the international debate does not seem to be leading to truly innovative approaches that can support the poorest livestock dependent peoples in the world in an effective way. This ELD approach seeks to support the poor and marginalised livestock-keeping groups, and has been developed by a group of people working involved in various international networks related to livestock and poverty.

Livestock plays a very important role for the poor and marginalised people throughout the world. This

implies rural as well as urban livestock keepers, settled farmers as well as pastoralists. Most poor rural households keep livestock as livelihood and social security strategy. Livestock is especially relevant for most vulnerable groups, such as female headed households, the elderly, and the sick.

Its multifunctional role includes various elements:

- Resource management: draft power, use of by products, fertilisation of fields, energy for cooking;
- Economic role: food-security, family income, employment, risk mitigation, bank account, transport;

<sup>1</sup>Katrien van't Hooft  
Editor, consultant  
ETC/Compas  
PO Box 64, 3830AB Leusden, The Netherlands  
E-mail: katrien.hooft@etcnl.nl

<sup>2</sup>Jacob Wanyama  
Project Manager,  
VETAID North Gaza Food Security Project,  
Rua dos COMBATENTES,  
C.P. 44 Chokwe, Mocambique  
E-mail: wanyama@vetaid.net

- Ecological role: genetic diversity, landscape management;
- Social role: status, identification, social occasions, local organisations; social transactions;
- Spiritual role: animal totems, 'living souls', to communicate with ancestors

The characteristics of livestock when kept in poverty situations include the following:

- Variety of species are used at the same time;
- Sometimes one species is kept under more intensive conditions for the local market, while the other species are managed under low-input conditions;
- Mostly local breeds are used, as are local and indigenous fodder crops;
- There is a variety of breeding forms and purposes;
- Breeding is dynamic and flexible;
- It is strongly based on informal marketing mechanisms;
- It is based on local knowledge, resources, customs and spirituality.

From these roles and characteristics we can conclude that livestock has important role and potential for poverty alleviation, as well as for organic biodiversity and environmental sustainability (3). Livestock contributes directly or indirectly to 5 of the 8 elements of the Millennium Development Goals defined by the World Bank and the IMF (see box 1). Meanwhile, livestock is largely under estimated in the national government policies. A study of the role of livestock in the Poverty Reduction Strategy Papers – the centre piece for policy dialogue in all countries receiving financial support towards reaching the Millennium Development Goals– showed that in the plans of the 61 poorest countries of the world, livestock was generally under-estimated, and that greater attention is given to commercial operations than to the species and structures relevant to the poor. (1)

### Box 1

#### Millennium Development Goals

1. *Eradicate extreme poverty and hunger* (in 2015-50%)
2. *Achieve universal primary education*
3. *Promote gender equality and empower women*
4. *Reduce child mortality*
5. *Improve maternal health*
6. *Combat HIV/AIDS*
7. *Ensure environmental sustainability*
8. *Develop a global partnership for development with several specific targets*

#### Other global trends and premises

Livestock policies, education and research are strongly influenced by concepts from industrialised countries. They are primarily directed at commercial farming, and based on the assumption that improving

animal productivity aimed at (international) markets will provide the ultimate solution to poverty (4). In this way they are neglecting the both the complexity and the potential of smallholder livestock keepers- and pastoral systems.

Other global trends include:

- The growing demand for cheap animal products, especially due to the rapidly growing urban areas of developing countries;
- The Livestock Revolution - the increase of large-scale industrialised livestock production systems in developing countries;
- Increased bio-technology (often in the name of poverty alleviation);
- Increased poverty amongst small scale livestock keepers and pastoralists. In many cases, the poor livestock-keepers in developing countries have not been able to benefit from the increased demand for animal products; instead they often find themselves marginalised in terms of resources and markets.

In this context we believe there is a need to focus specifically on the role of livestock from a peoples' centred perspective, based on the livelihoods and strategies of livestock keeping peoples themselves. This implies maintaining the multi-functionality of livestock, as well as focusing on the equilibrium between crop and animal agriculture. The prevailing focus on crops within government policies, production subsidies, education and research, has often lead to poor understanding of the livestock component (2). Though initiated on basis of experiences in poorer regions of developing countries, Endogenous Livestock Development may have a role to play in more developed regions and countries as well.

#### What do we mean by Endogenous Livestock Development?

Endogenous means "coming from within":

- Endogenous development has been defined as 'development from the inside' or development based on people's own initiatives, knowledge, institutions, resources, perception of wellbeing and and worldviews;
- This worldview, and also people's own criteria for wellbeing and development, has natural elements (nature in all its expressions), human elements (people and their relationships), as well as spiritual (religious and animistic) elements. These elements need to be in balance for wellbeing and health.
- Endogenous development includes the use of both combined inside (local) and outside (external) resources, practices and knowledge;
- Development organisations can *support and enhance* the process of endogenous development.

This also applies to livestock keeping. Endogenous Livestock Development (ELD) is thus a people-centred approach, which stands for supporting the husbandry



systems based on livestock keepers' own innovative strategies, knowledge, and resources, as well as their perception of well-being and improvement. It aims at development based on capacities, without romanticising these views and practices.

### **Livestock development on the move**

Over the past decades many organisations throughout the world, especially NGOs, have developed participatory and farmer-led approaches to pro-poor (livestock) development, such as PLA (Participatory Learning and Action) and PTD/PID (Participatory Technology/Innovation Development). Also in the livestock field, there are various 'people-centred' instead of 'animal-production centred' approaches directed at poverty alleviation, such as:

- Ethnoveterinary medicine
- Movements to enhance Livestock Keepers' rights
- Pro-poor Livestock Initiatives
- Community-Based Animal Health Care
- Community-Based Management of Animal Genetic resources
- 'Passing on the Gift' initiatives
- Organic Animal Husbandry
- Family Poultry Networks

Over the years, the importance of these participatory approaches and of taking local knowledge into account has become broadly recognised, especially for baseline data collection and problem identification during the initial project stages. But, when it comes to the design and implementation of solutions, however, the methods rarely seek to build on livestock keepers' knowledge and strategies.

Moreover, many of these approaches experience difficulties in overcoming an implicit western bias.

ELD seeks to overcome these shortcomings and biases by making peoples' worldviews, values, knowledge, institutions, initiatives and locally available resources the starting point for livestock development. ELD recognises the value of outside resources and knowledge and helps local people select those that fit the local conditions rather than alienating them from their own culture.

In terms of methodology, endogenous livestock development includes various elements that are not focused on in the more 'conventional' participatory methodologies in livestock development. Examples are:

- Participatory methodologies on basis of people's own criteria of development, learning, experimenting, communication;
- Self reflection of development practitioners on their own worldviews and knowledge, and how this influences their relationships with the rural people;
- Including the theories and the 'why' of local

practices and knowledge (for example, the concept of 'hot' and 'cold' diseases)

- Including existing leadership structures
- Openness towards cultural practices
- Enhancing the multi-functionality and (ecological) functioning of the livelihood system as a whole, rather than merely the livestock production aspect of it.

### **Join the ELD network!**

We hope that this may be the starting point of a strong international movement of individuals, organisations and networks that are truly involved in "livestock-keepers" development', with structures that enable to generate insights, methodologies and lobbying capacity. In this sense we are working towards the 8th goal of the Millennium development Goals (*Developing a global partnership for development with several specific targets*).

The objectives of the ELD initiative are:

- Creating a global umbrella for exchange, collaboration and networking
- Deepen the understanding and implications of people-based livestock development
- Stimulate field-based ELD initiatives
- Influence livestock policies, research and education

Some of the major questions that need to be addressed in this effort include:

- How can local farmers make use of opportunities of globalisation?
- How to maintain the multi-functionality of livestock in the development process?
- What are the best methodologies for in-situ improvement of local practices?
- In what way can external practices and local practices be combined?
- What are good methodologies for supporting local livestock organisations?
- How to deal with internal controversies and negative practices?

You are invited to become part of the ELD network.

You can:

- Join the ELDev e-mail discussion (write message to [evelynbarth@netcologne.de](mailto:evelynbarth@netcologne.de))
- Request the ELD concept note (at [katrien.hoof@etcnl.nl](mailto:katrien.hoof@etcnl.nl), or [evelyn@mamud.com](mailto:evelyn@mamud.com))
- Read the People and Livestock Electronic Newsletter ([www.life.initiative.net](http://www.life.initiative.net))
- Get a free subscription to Compas Magazine on endogenous development ([www.compasnet.org](http://www.compasnet.org))
- Bring forward your experiences, publications, insights and contacts!

We hope that a growing number of local, national and international organisations will seriously consider the option of endogenous livestock development.

## Literature

1. Blench R., Chapman R. & Salymaker T., 2003, A study of the role of livestock in the Poverty Reduction Strategy Papers. PPLPI Working Paper no, 1, FAO, Rome.
  2. Haverkort B., van't Hooft K.E., & Hiemstra W. (eds.), 2003, Ancient roots, new shoots: endogenous development in practice. ETC/Compas, and Zed Books, London.
  3. Koehler-Rollefson I., 2004, Endogenous versus globalised: An alternative vision of livestock development for the poor. Unpublished paper, League for Pastoral Peoples, Ober-Ramstadt.
  4. Waters-Bayer A & Bayer W., 2002, Research to alleviate poverty in the face of industrialisation of livestock production. Key note address during international conference 'Responding to the Increasing Global Demand for Animal Products', University Cultural Centre UADY, Merida. Mexico, 12-15 Nov.
- 



Figure 1: Quechua woman in the valley (near Copchabamba, Bolivia) with her guinea pigs and other animals, which are essential for her wellbeing and livelihood.

## ABSTRACT

# ENHANCING THE ROLE OF LIVESTOCK IN POVERTY REDUCTION STRATEGIES: ANALYTICAL APPROACHES AND APPLICATIONS

A. Freeman\*<sup>1</sup> & B. Minjauw<sup>1</sup>

## Proposal description

The proposal describes analytical work by the International Livestock Research Institute and its partners on livestock and poverty reduction. It also provides some insights into the practical and potential application of the results from livestock and poverty analysis in the design of poverty policies, projects, and strategy formulation.

Globally about one-quarter of absolutely poor people are livestock keepers. In two of the major poverty hotspots, south Asia and sub-Saharan Africa, livestock keepers account for 36% and 30% respectively of poor livestock keepers world wide. The multiple roles of livestock in rural livelihoods have long been recognized, although the dynamic implications of these roles in a poverty reduction context have not been fully appreciated. For example, a recent FAO study on livestock in Poverty Reduction Strategy Papers (PRSP) showed that the livestock sector was neglected in national strategies even in countries where livestock is playing a significant role in the economy. Yet, the livestock sector has broader roles in building and sustaining economically viable livelihoods. These include not only production and marketing in growth strategies but nutrition, asset accumulation, ex-ante risk management, ex-ante coping and social obligations. There is therefore an urgent need to identify and link livestock sector strategies with strategies to comprehensively address poverty reduction.

Past research undertaken by ILRI and its partners on livestock and poverty reduction has focused on poverty diagnostics. This work provided answers to policy relevant questions such as where are the poor livestock keepers; where are the poor; what

explains pathways into and out of poverty and the role of livestock in these processes. The result from the research on where are the poor livestock keepers produced maps and tables that show the location of significant populations of poor livestock keepers worldwide and assessed how these populations are likely to change over the next 30 to 50 years. High resolution maps combining welfare survey and census data and using econometric techniques were used to provide insights into the question where are the poor. ILRI and its partners have completed poverty maps for Kenya and Uganda and another for Tanzania is nearing completion. These maps have been used widely by governments, policy makers, donors and civil society to target poverty interventions. The analysis of pathways into and out of poverty and the role of livestock applied an innovative qualitative approach – Stages of Progress – to understand the dynamic processes that are associated with household movements into and out of poverty and the critical role of livestock in these processes. These studies, using a comparative case study approach, have been applied in Kenya, Uganda, India, and Peru. The results obtained are providing fresh insights into the design of more innovative and more effective poverty reduction interventions. The presentation will provide insights into the evolution of livestock-poverty research at ILRI and the lessons learned for future poverty reduction interventions. It will also describe ILRI's current work combining GIS/Spatial data and non-spatial data based on integrated qualitative and quantitative approaches to better explain the determinants of poverty and the role of livestock. The output from this work is expected to assist in the identification, evaluation, and prioritization of targeted livestock (and non-livestock) poverty interventions.

\*<sup>1</sup> Director, Targeting R & D Opportunities, ILRI  
Address: P.O. Box 30709, Nairobi, 001000, Kenya  
Phone: +254-20-422-3014 Fax: +254-20-422-3001

**In the developing world livestock is often the only source of food, the only source of life. That is why in 1989 VSF was founded. Since 1995 VSF Belgium is an officially recognised humanitarian non governmental organisation. Together with the most vulnerable populations our vets in the field aim for sustaining local herds and improving livestock production. But without your help this is not possible. Make a donation today bank account number: 732-6190064-60**

**SWIFT/BIC CODE: CREGBEBB IBAN: BE 73 7326 1900 6460**



**DIERENARTSEN | VETERINAIRES  
ZONDER GRENZEN | SANS FRONTIERES  
B E L G I U M**



Southern Sudan, Roger Job 1997



VSF Europa is a non-profit International Association made up of development organisations who share the commitment of working towards reducing poverty and increasing food security of people dependant on livestock. Though the nine member organisations work mainly in developing countries throughout the world, they also have activities in the North. VSF Europa organises biannual meetings and symposia to promote co-operation and dialogue between its members as well as with the public.

[www.vsfeuropa.org](http://www.vsfeuropa.org)

## ORIGINAL ARTICLES

## Session 2

## LIVESTOCK AND FOOD SECURITY



Vaccination in Niger (VSF, 2003).

## LIVESTOCK AND DEVELOPMENT: GLOBAL TRENDS AND LOCAL REALITIES IN FOOD SECURITY

C. C. Jost<sup>\*1</sup>

Keywords: Livestock in development, food security, vulnerability

### Summary

The role of livestock in development leading to food security is understood from a multiplicity of perspectives and voices, including that of livestock keepers, governments, development professionals, and donors. This paper explores these perspectives and how they impact development at the local level. The concept of vulnerability is examined as a call to action for development practitioners to take appropriately pro-poor approaches to livestock development.

### Résumé

**Élevage et développement: tendance globale et réalité locale dans la sécurité alimentaire**

La contribution de l'élevage dans le développement et la sécurité alimentaire est perçue d'une multitude de perspectives et de voies dont celles des éleveurs, des gouvernants, des professionnels et des donateurs. Cette publication explore ces perspectives et leurs impacts sur le développement à un niveau local. Le concept de vulnérabilité est vue comme un appel lancé auprès des praticiens d'adopter des approches

<sup>\*1</sup>Christine C. Jost, DVM, MA

Assistant Professor, International Program/Centre for Conservation Medicine, Tufts University School of Veterinary Medicine USA.

Address: Tufts University School of Veterinary Medicine, 200 Westboro Road, North Grafton, MA, 01536, USA, Phone 508-887-4763, Fax 508-839-7946,

E-mail: Christine.jost@tufts.edu



appropriées pour le développement de l'élevage particulièrement chez les plus pauvres.

## Introduction

Livestock play an important role in development and food security. However, changes in production on a global scale are resulting in local level changes that do not always support the development needs of poor livestock producers. This paper examines global trends in livestock production from a food security perspective. The major livestock production systems in the developing world are described. The role of livestock in subsistence production at the local level is explored, and how global trends are impacting local realities.

Finally, the concept of vulnerability will be examined as a call to action for livestock development practitioners to take an appropriately pro-poor approach to interventions. Development practitioners should use their field-based knowledge to lobby for appropriate research, institutional change and enabling policy needed for sustainable livestock development.

## Global Food Security and Livestock in Development

Many organizations, including the United Nations, have defined food security in terms of the ownership or access to enough food to assure healthy, productive lives (12). While access to nutritious, satisfying food on a daily basis is an important aspect of food security, this type of definition does not address the need of poor livestock producers to reduce their vulnerability to short and long-term food insecurity.

In 1987 the Brundtland Commission provided a more inclusive definition, "The secure ownership of, or access to resources, assets, and income-earning activities to offset risks, ease shocks, and meet contingencies" (5). This definition recognizes that long-term food security entails more than just the actual consumption of food, and includes the skills and resources necessary to produce, buy and store food, as well as to smooth consumption and ease vulnerabilities to shocks that diminish food availability.

The Millennium Development Goals include the goal to, "Eradicate extreme poverty and hunger by halving, between 1990 and 2015, the proportion of people who suffer from hunger" (10). Yet current efforts to reduce chronic hunger have been insufficient to achieve this goal (11). Approximately 1.2 billion people live on less than 1US\$ per day (11). There are 852 million chronically or acutely malnourished people (10), 170 million of whom are children (6). The International Food Policy Research Institute (IFPRI) has projected childhood malnutrition trends to 2050, predicting a global decline from 31% of children in 1997 to 14% in 2050 (9). However, childhood malnutrition will increase in Sub-Saharan Africa until 2015, and then

slightly decline to 2050. Levels in South Asia, currently the highest, will decline to nearly equivalent of Sub-Saharan Africa (9).

Fifty percent of the world's hungry are smallholder farmers, 20% the rural landless, 20% the urban poor, and 10% pastoralists, fishers or forest dependent peoples (4). The FAO reports 40 food emergencies for the period 2003-2004 (4). Of these, 22 were human induced, with 19 related to conflict or past conflict, two to economic problems, and one to refugees (4). Of 18 food emergencies caused by natural disasters, all were related to weather extremes, mainly drought (4).

Despite these statistics, and the need for increased food production to meet the Millennium Development Goal, growth in global crop yields is slowing (9). According to IFPRI's International Model for Policy Analysis of Agriculture Commodities and Trade, growth in cereal production is projected to increase by only 56% by 2050, with developing countries accounting for 93% of cereal-demand growth (8). Livestock production is projected to increase by 90%, with developing countries accounting for 85% of meat-demand growth (8).

Meanwhile, new challenges to food security are developing. Those affected by HIV/AIDS often suffer from a diminished production capacity (9). The challenges faced by HIV/AIDS affected populations in Southern Africa, particularly Zimbabwe, are the most drastic example. Climate change threatens the food security of entire regions (9). Those particularly at risk are non-diverse populations of subsistence livestock herders (7), and those populations living in dry zones with high rates of climate variability (7). In addition, declining state investments in agriculture research and extension is leading to less access for the rural poor to information and resources to improve crop production (9).

## Major Livestock Production Systems in the Developing World

Global food security trends have a strong impact on development potential for poor livestock producers. Traditionally, there have been three main livestock production systems in the developing world. Pastoralism is a mobile system of keeping livestock in which herders move repeatedly looking for pasture and water. Most pastoralists live in arid to semi-arid environments, and most production is focused on ruminants (camels, cattle, sheep and goats) and equids. Because dry lands tend to produce a high protein grass-based diet, milk tends to be a major production goal, while meat and the cultural value of animals are important.

Like pastoralism, agropastoralism is an extensive system of livestock husbandry. However some crop agriculture is carried out, usually at a home site. Agropastoralism tends to occur in semi-arid

environments. In addition to ruminants, the sedentary portion of the livelihood system allows for the poultry husbandry. In addition to livestock-derived protein, animals in agropastoral systems play a critical role in cropping activities, including traction and fertilizer. Mixed subsistence farming tends to occur in more sub-humid to humid environments, as sedentary systems in which crops are the main source of food and animals support the farming operation. Mixed subsistence farming is the most widespread form of agricultural in the world today, and involves a variety of species, including ruminants, poultry, swine, equids, and small species.

In developing countries, increases in wealth are associated with increases in meat consumption, in a phenomenon known as the Livestock Revolution (2). This is leading to a shift from traditional extensive livestock production to systems that are more intensive, relying on the feeding of cereals, production of mono-gastric species, and exploitation of more humid eco-regions (1). Due to poor infrastructure constraints, more intensive production systems in the developing world have a closer urban proximity so as to access resources such as concentrated feed, and to reduce shipping distance to urban consumers. Therefore, as a result of an increasing demand for livestock-derived protein in the developing world, livestock production is becoming more urbanized and industrialized (2). This is leading to the emergence of two newer livestock production systems in the developing world: industrialized livestock production and urban livestock production, including poor urban livestock keepers.

### **Rural Realities**

Despite increasing production and consumption of livestock-derived food in developing countries, the potential to further increase animal protein in the diet remains significant. Although trends favor higher consumption of animal protein and greater overall food security in urban areas, an increased demand for and consumption of livestock-derived food can, in principle, be realized within all production systems. However, with the urbanization of livestock production, rural livestock producers may be facing increasing vulnerability compared to their urban counterparts due to a multiplicity of factors, including isolation, lack of market access, fewer resources, and less access to knowledge and training.

In the majority of rural households, livestock play a critical role in household food security. Basic nutritional needs can be met through livestock production, or the purchase of animal proteins. The ownership of livestock allows for the diversification of assets, thereby decreasing nutritional vulnerability, particularly in cropping systems. In crop-livestock systems, animals provide critical services in the form of fertilizer, transport, traction and nutrient recycling.

They also provide income through sales and rentals. Employment is possible in livestock care and product processing. In unstable currency markets, livestock banking allows for investment in commodities whose relative values tend not to change. In situations of chronic conflict and political instability, certain species of livestock that are easy to move and hide provide otherwise unavailable protein. These types of contributions are also important in urban households. In addition to employment in production and commodities market, jobs that depend on livestock can be found in restaurants, tourism, and transport. However, in general, the production of livestock for household consumption in rural areas is becoming more expensive. Global markets are generally out of reach for these producers.

### **Vulnerability and Food Security**

The way in which vulnerability is defined has a significant impact on how food insecurity is being addressed by the international community. In fact, in situations as diverse as poor rural areas and complex emergencies, a focus on outcomes rather than the underlying characteristics that make populations prone to food insecurity leads to increased long-term vulnerability for populations. Dilly and Boudreau (2001) offer two definitions of vulnerability. The international food security sector defines vulnerability in relation to an outcome, thereby measuring things such as hunger, famine and food insecurity when identifying populations in need of interventions (3). This focus on outcomes encourages a chronic cycle of humanitarian relief, as populations that experience hunger and famine lose their ability to resist shocks, thereby experiencing more disasters. The international disaster assessment sector tends to identify the characteristics of a population that puts that population at risk for negative outcomes (3). These characteristics can be internal, such as non-diversified production and lack of infrastructure, or external, such as policy constraints and conflict. Livestock development practitioners need to ask themselves an important question. Do we address outcomes or risks? There is no question that we bear a moral obligation to address humanitarian disasters such as famine. However, we also share an equal obligation to prevent the next disaster by addressing the characteristics of populations that make them vulnerable to food insecurity, including climate change, environmental degradation, lack of access to human and infrastructure resources, non-diverse production assets, and poor education.

### **A Call to Action for Development Practitioners**

Livestock development practitioners, from the individual to the organization, are well positioned to change how development is being carried out, so as to reduce the vulnerabilities of poor livestock

producers. In addition to providing interventions, every organization should consider what role it can play in research and institutional change. Even if an organization does not have research as a mandate, as implementers of livestock development projects every organization is a consumer of research information. Organizations can advocate for research initiatives that are pro-poor and reduce vulnerabilities, particularly by making donors aware of the need to develop appropriate technologies and methodologies. Organizations can also lobby donors and international bodies for supportive policies that lead to institutional change regarding the goal of vulnerability reduction at the local, national and international levels.

Some sectors of society risk being left behind by the Livestock Revolution, and global conflicts are becoming increasingly chronic and frequent. The

line of demarcation between what is a humanitarian situation and what deserves a development approach is increasingly blurry. Development practitioners need to spend more time evaluating needs, developing creative intervention approaches, and honestly assessing impacts. Humanitarian interventions classically address disaster outcomes, while development approaches address vulnerabilities. In many complex emergencies, humanitarian interventions are being inappropriately applied by the livestock practitioners, situations where developmental relief approaches that recognize the need during a crisis to reduce a population's vulnerability to future crises would be sounder. Organizations that recognize the need for developmental relief approaches should adopt mandates for policy and institutional change in the relief and development sectors.

---

## Literature

1. De Hann C., Steinfeld H. & Blackburn H., 1997, Livestock and the Environment, Finding a Balance. Report of a Study Coordinated by the Food and Agriculture Organization of the United Nations, the United States Agency for International Development, and the World Bank. Brussels: European Commission Directorate-General for Development.
  2. Delgado C., Rosegrant M., Steinfeld H., Ehui S. & Courbois C., 1999, Livestock to 2020, the Next food Revolution. IFPRI, Washington, D.C.
  3. Dilley M. & Boudreau T., 2001, Coming to terms with vulnerability: a critique of the food security definition. *Food Policy*, 26: 229-247.
  4. FAO, 2004, The State of Food Insecurity in the World 2004. Rome, FAO.
  5. Heap R.B., 1998, Animals and the Human Food Chain. In: Feeding a World Population of More than Eight Billion People, A challenge to science. J. Waterlow, D. Armstrong, L. Fowden and R. Riley, editors. Oxford University Press, New York, pp. 232-245.
  6. IFPRI, 2002, Sustainable Food Security for all by 2020: Proceedings of an International Conference, September 4-6, 2001, Bonn, Germany.
  7. Jost C., 2003, Facilitating the Survival of African Pastoralism in the Face of Climate Change: Looking Back to Move Forward. MA degree thesis for the Fletcher School of Law and Diplomacy, Tufts University, Medford, MA, USA.
  8. Rosegrant M., Meijer S. & Cline S., 2002, International Model for Policy Analysis of Agriculture Commodities and Trade: Model Description. IFPRI, Washington, D.C.
  9. Rosegrant M. & Cline S., 2003, Global Food Security: Challenges and Policies. *Science*, 2003: 1917-1919.
  10. Sanchez P., Swaminathan M.S., Dobie P. & Yuksel N., 2005, Halving Hunger, it can be Done. Earthscan, London.
  11. UNDP, 2001, Human Development Report 2001. Oxford University Press, New York.
  12. World Bank, 1986, Poverty and Hunger: Issues and Options for Food Security in Developing Countries. World Bank, Washington D.C.
-

# LIVESTOCK BREEDING AND FOOD SECURITY IN TODAY'S PALESTINIAN TERRITORIES

N. Sinjilawie<sup>\*1</sup> & M. Nori<sup>2</sup>

Keywords: Palestine, Food security, Small ruminants, Rural market, Technical assistance

## Summary

In September 2000 the II Intifada burst out of political tensions, fruitless negotiations and physical provocations between the Palestinian and the Israeli communities. As a result of the 'security measures' which followed, food security got worryingly at stake for a large sector of the population in the Occupied Palestinian Territories. Since then the Palestinian economy has undergone major rebuilding efforts, which have reshaped local landscapes, livelihoods and habits, towards recreating self-subsistent household economy systems and decreasing the dependence from unreliable market mechanisms, which mainly relate to exchanges with or through Israel. Livestock production plays a major role in this process as it has always represented a safety valve and a drawback sector for Palestinians in the many different times of crisis, by securing food production, providing for labour opportunities and supporting rural incomes. More specifically the Small Ruminants sector is increasingly becoming the most important economic activity in the West Bank, showing specific comparative advantages in the agricultural domain. The establishment and experience of the Palestinian Livestock Service Centre are critical for this challenge.

## Résumé

### Élevage et sécurité alimentaire dans les territoires palestiniens d'aujourd'hui.

En septembre 2000, la 2<sup>ème</sup> Intifada a éclaté suite à des tensions politiques, des négociations stériles et des provocations physiques entre les communautés palestiniennes et israéliennes. Suite aux mesures de sécurité qui en ont découlé, la sécurité alimentaire s'est dégradée pour une grande partie de la population des territoires palestiniens occupés. Depuis lors, l'économie palestinienne a entrepris de grands efforts de reconstruction, qui ont réaménagé le paysage local, les us et coutumes, dans le sens d'une restauration de l'économie familiale de subsistance et d'une diminution de la dépendance à des mécanismes de marché douteux, qui proviennent pour la plupart d'échanges avec ou au travers d'Israël. Les productions animales jouent un rôle majeur dans ce processus du fait qu'elles ont toujours représenté une soupape de sécurité et un secteur de secours pour les palestiniens dans de nombreuses situations de crise, en sécurisant la production de denrées, fournissant des opportunités de main d'œuvre et des revenus agricoles. Plus spécifiquement, l'activité économique en rapport avec les petits ruminants prend une importance croissante dans les territoires, montrant le meilleur avantage comparatif dans le domaine de l'agriculture. La mise en place et l'expertise du Centre palestinien de l'élevage joue un rôle central dans ce qui doit être considéré comme un défi.

## Introduction

### 1. Agriculture and Food Security in the Palestine

The Food Security definition as to the World Food Summit (1996) involves aspects of food availability, access and use. An analysis of food security conditions during the last decades in the OPT is therefore a necessary preamble (11).

#### 1.1 Recent Food Security trends

Before the Israeli occupation in 1967 agriculture represented the major livelihood source for Palestinian

rural families despite of the low income it provided. Most Palestinian households used to be directly engaged in different forms of agricultural production (crop, garden and animal). While the bulk was utilised for own consumption, surplus production was sold in the city markets. Rural areas represented the Palestinian food basket.

Since Israeli occupation in 1967 the evolving relationships and exchanges between the Palestinians and the Israelis reshaped the livelihood patterns of both communities, by carrying huge consequences on the Palestinian human (the Israeli labor market attracted a

<sup>\*1</sup> PLSC, Palestinian Livestock Service Center, Deriah Building, Salah Al-Dein Street, Nablus, Palestine – Fax: \*972 9 2335555; e-mail: plsc-gm@palnet.com ; website: www.pldc-ps.org

<sup>2</sup> Ucodep, via Rossini, 20, Firenze, Italia - Fax: \*39 055 3245133 areaestero@ucodep.org with contributions from VSF, Veterinaries Sans Frontiers, France. vsfjeru@palnet.com

large number young men leaving women in charge of the countryside), natural (the continuous development of Israeli settlements put strong restrictions to the utilization of land and water resources) and financial (most agricultural products and inputs were acquired through Israel) assets.

As an indicator, agricultural proportion to the GDP dropped from 40 percent in 1967 to 13.7 percent in 1994. The Palestinian house economy decreased from 90% to reach a level of not more than 20%, and the Israeli market became the Palestinian food basket. All these factors contributed on one side to develop the Palestinian society and economy, while also establishing high degrees of dependency upon Israeli services, skills and products.

This became clear during the first Intifada, when impediments to these exchanges gave rise to food security problems in the OPT.

The establishment of a recognised Palestinian political body in 1993, the Authority, allowed for interesting socio-economic developments, such as the growth of a formal civil society. Rural structures changed little, nonetheless, and major trends remained as above, while the Israeli encroachment upon Palestinian natural resources became more evident, with the continuous development of new and larger settlement areas in the OPT and through the formalisation of Israeli control of most of the West Bank underground water (as to the Oslo agreement). Access to and control of natural resources was therefore further restricted to the Palestinians.

## 1.2. The second Intifada

The start of the II Intifada on the 29th September 2000, as a response to Mr. Sharon provocative visit to Al Aqsa mosque, and related Israeli security measures led to massive changes in the relationships between Palestinians and Israeli, with major impacts on the livelihood of both communities. On the Palestinian side the most visible features are:

- Huge rise of unemployment rates (from 10% in 1999 to 28,3% in 2001 – PCBS data), with consequent decline in income (about 46% drop from the late nineties, measured in real terms – World Bank data). Overall economic downtrends carried an enormous impact on the Palestinian society and specifically on its rural world.
- Security problems affected Palestinian rural economy at large, as production and market opportunities were largely constrained by continuous curfews, isolation of cities and villages, closures and restrictions and major damages to infrastructures and facilities.
- Palestinians are witnessing a worrying decrease in their rights to access land. On one side the current conditions push a growing population

to seek out a living out of their own resources, through land reclamation schemes and other agricultural investments – while on the other Israeli continuous pressure on land resources is also growing. While all settlements have both an agricultural and a military character (12), the building of the Israeli security wall is just the latest encroachment effort.

### BOX 1 – The security wall

The establishment of the 'security' wall consistently affects overall access to basic natural resources, such as land and water (8), and it carries major consequences on the mobility and the exchange options of enclosed communities. Especially on the eastern portion of the West Bank, the wall encroaches deep and cuts out consistent portions of the local lands, from the fertile and irrigated valley bottoms use for crop and vegetable production, to the sloppy rangelands used for small ruminants grazing along the Jordan River. On top of that the Palestinian people and animals that used to reside and live on the other side of the wall-line are pushed back into the enclaved OPT. This means that more people and animals are increasingly insisting on shortened lands, with all related consequences (1).

Currently overall food security in the OPT is ensured by the low prices of agricultural products and food staples, with this situation reflecting negatively for farmers and agricultural producers and being unsustainable in the long term.

## 1.3. Palestinian Agriculture and Livestock

Nowadays more and more Palestinians are turning to agriculture to ensure reliable sources of food and income. As a result of reduced income-generation opportunities, sectoral studies indicate that there has been a large increase in the population involved in domestic farming and livestock raising, since beginning of 2001. Currently Agriculture accounts for more than 10% of the Palestinian GDP and plays a safety valve role within the Palestinian society during difficult times, as was also the case during the times of the first Intifada.

Problems of security carried serious impacts upon consumers' purchasing power as well as on agriculture production costs. Overall prices for agricultural inputs raised dramatically (e.g. feeding and vet inputs for livestock) in fact as a result of problems in as transport and import modalities due to continuous closures and curfews. This situation greatly affected the economic return for the diverse agricultural sectors, which nevertheless represented the only viable option in such context (4).

While trends for other sub-sectors indicate different development trajectories, animal production shows exceptional increases since 2001, as households



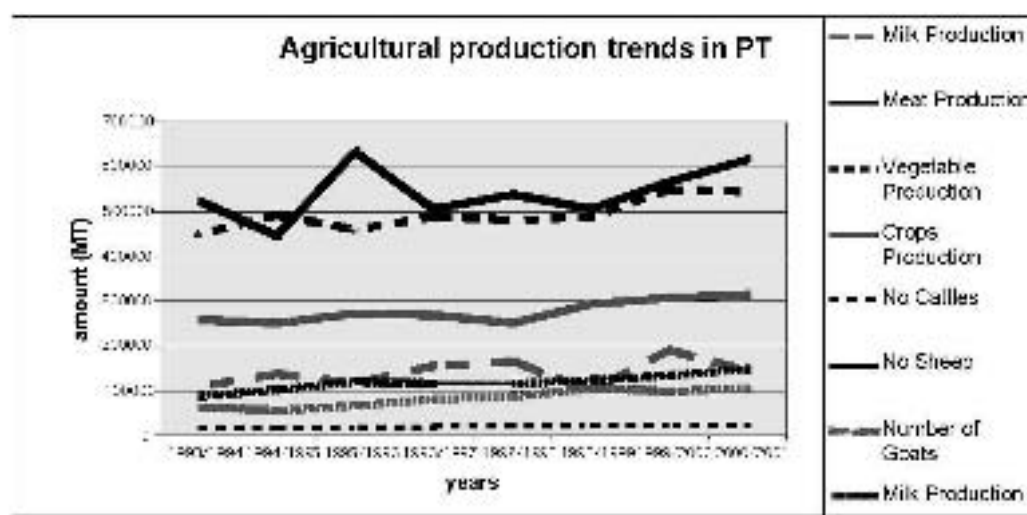


Figure 1: Trends in agricultural production amounts.

resorted to livestock in order to cope with the economic situation and provide with a source of food and income (2). The livestock sector is the only one showing continuous and consistent growth in both levels of investments and values of production among Palestinian agriculture systems. This means that in the current environment most resources and hopes of Palestinian households and communities reside in improving and increasing livestock production. The degrees of success or failure of this challenge will critically affect food security trends in the OPT to a large extent.

Animal breeding represents about 46.2% of the total agricultural contribution to the national income. The value of livestock production (meat, dairy, eggs) registered approximately US\$ 382 million. Small Ruminants account for about 41.2% of the whole animal production in the OPT. The remaining 58.8% comes from beef, cows' milk, chickens meat and other products such as fish, honey etc., while the contributions of these sectors were as follows: 58.2% meat, 28.1% dairy, 9.4% table eggs from the total livestock production of the OPT (5).

In the West Bank, livestock production represents 82.1% and in Gaza Strip, it represents 17.9%. The major contributions based on geographical locations of the OPT were from Hebron (24.5%), Jenin (11.4%) and Nablus (9.6%). Meat and milk production concentrates in Hebron, Jenin and Nablus governorates, while the value of milk production was concentrates in Hebron, Nablus and Jenin, and poultry production in Hebron, Gaza and Ramallah & Al-Bireh respectively (PCBS data).

Data from 1998 about consumption demand for livestock products report that only 61% of milk products and 35% of red meat was produced internally (including beef). Recent surveys indicate that milk productions have been increasing at 12% and meat at 7% rates in recent years (PCBS data). These increased are reflected by decreasing imports, although figures are still high, accounting for US\$ 29 millions annually, mainly for dairy products imported from Israel. Improving small ruminants production and marketing within the OPT will therefore have a double fold, decreasing overall dependence from Israel and increasing overall access to food for all.

Table 1

Livestock amounts in Palestine for the last decade

	1994/95	1995/96	1996/97	1997/98	1998/99	1999/00	2000/01	2001/02
No Cattle	18024	19312	20976	22050	23858	23688	26601	33235
No Sheep	445151	634489	504903	537998	504078	566409	615838	758293
No Goats	252235	272636	267101	252258	295033	308845	313583	335387

Source: PCBS, 2003

#### 1.4. The Small Ruminants sector

Within this context SR sector trends are outstanding and indicate clear and consistent advantages in comparison with other agricultural enterprises (namely crop, poultry, and cattle). In the current environment SR provide the best option to balance economic

returns and risk minimization and represents the most important agriculture sub-sector in terms of production value, animal population and number of farm holdings. It represents the main coping mechanism to generate food and income for about 25% of the households residing in the West Bank.

Despite these outstanding features technical advisory services offered to SR farmers are tremendously lacking. Agricultural extension and research are still in their infancy, lacking financial resources and creativity, while such important matters as farmers organizations and credit are almost not addressed yet. The Palestinian Ministry of Agriculture (MoA) since 1996 is still in the middle of reconstruction and, non-governmental organizations have not really focused their efforts on the development of this sector.

These are the main reasons that supported the establishment of the Palestinian Livestock Service Centre (PLSC) - aimed at addressing this discrepancy and bridging the existing gaps between technical assistance, producers, consumers and the wider societal environment.

#### BOX 2 - Palestinian Livestock Service Center (PLSC)

PLSC is a Palestinian non-governmental organization concerned with the development of the livestock sector, and precisely of small ruminants. The main goal of PLSC is to improve the livelihood of SR breeders by increasing their wealth and self-reliance through the improvement of quality livestock services delivery. PLSC was established in 2002 with the support of the European Commission Food Security Programme, the French Ministry of Foreign Affairs and the assistance of the French NGO Vétérinaires Sans Frontières (VSF-Fr). It currently receives support from the Italian NGO Ucodep (7). Major services offered today by PLSC to Palestinian breeders include overall extension and training on animal feeding, health and reproductive issues and specific servicing on Ultrasound Pregnancy Test (UPT), Sponges and Hormones (SH) and parasite control. While extension training is made on free basis, the other services are provided on service-fee basis.

## 2. Socio-economics of small ruminants breeding

Apart from its food security relevance - as it supports rural livelihoods and provides urban needs with protein-rich food - small ruminant breeding are also importantly addressing other spheres of the Palestinian society, such as the cultural (tradition and attachment to land) and the social (household labour and women role) ones.

### 2.1 Diverse breeding systems

There is a wide diversity of SR farming systems in

the West Bank, from the intensive indoors ones, using improved breeds and modern reproduction and production techniques to the more traditional agro-pastoral systems. Current conditions generally push towards intensification and an expansion of the improved sheep breed (3). SR producers in the West bank can be broadly classified in two main groups (6):

- Bedouin herders, with semi-extensive systems;
- Smallholders, with semi-intensive systems.

It must be nevertheless noticed that these represent two segments of the same continuum (prof. Marx, pers. comm.), as SR breeding is a traditional livelihood source on these lands and rural households engagement varies from one case to another. Apart from distinct socio-cultural features smallholders and the Bedouin herders show degrees of commonality, diversity and complementarity when it comes to working environment, production systems, traditional knowledge, marketing patterns and related constraints and needs.

In the eastern slopes, mobile **Bedouin herders** rely on SR as a major source of income; flocks range from 70 to 700 hundred animals. Sheep and goats belong to local breeds, which better fit the local environment. Animals graze pastures in late winter and early spring and cereals stubbles in spring and late summer. Supplementary feeding (cereal grain and bran – about 80% of the total productions cost) is a common practice during these two seasons. Overall productivity is considered low, with ewes producing a mere 60 to 120 litres of milk and low twinning percentage. In times of peace, main problems facing this community are three-fold: (1) low productivity of their animals (2) high cost of animal feed (3) poor market value of their products. (9)

During these years, the Bedouins have been targeted by many – and often inconsistent - emergency interventions in the forms of donations and handouts, that did not address the structural causes of their problems. Given these reasons and the related operational difficulties, PLSC has awaited before drafting a strategical component addressing their needs. Now PLSC feels ready to undertake the challenge of including the Bedouins communities in its development strategy.

Table 2  
Similarities and diversities between the two SR systems

SMALLHOLDERS		BEDOUIN HERDERS
Semi intensive	Breeding pattern	Semi-extensive
Flock quality	<b>Flock priority</b>	Flock size
Sedentarized	<b>Setting</b>	Mobile
Semi-homogenous	Feeding system	Seasonal pattern
Concentrates	<b>Main feeding supplement</b>	Barley
Semi-traditional	<b>Production &amp; processing</b>	Traditional
Quality products	<b>Marketing</b>	Traditional products

In the central hills and western plains, **SR smallholders** own limited flocks of sheep (often not more than 50 heads) and comprised of the Assaf breed sheep mixed with the local Awassi one. Assaf hybrid sheep, obtained by crossing the Palestinian local breed with an European one, are well-known for their high productivity under intensive management. It potentially produces from 250 to 350 litres of milk per year (almost double than the Awassi one) and could deliver 3 times in 2 years, with a high twinning rate. As it is always the case, the balance in nature is that improved genetics match with intensified management. Production costs for appropriate intensive system associated to Assaf sheep are high since they mainly fed with concentrates and require constant animal health care.

During its development PLSC has strategically concentrated efforts mainly on this latter group, in order to improve overall coverage, and maximise the effectiveness of limited resources and as a result of the increased difficulties in reaching and properly assisting Bedouin communities. Operative contacts with Bedouin groups have nevertheless evolved through time. Initially PLSC differentiated SR breeders by ecological zones and livestock farming systems, as they were considered as an entire group of potential clients. Recent PLSC classification also included SR socio-economic relevance for the household:

The second and third classes normally involve breeders with traditional experience which have breeding SR since before the start of the Intifada, while the first class mainly includes the new breeders. The third class with flocks bigger than 50 heads are more often found on the eastern portion of the PLSC area, closer to the Jordan valley. More specifically the communities of Atoof (specialised breeders) and Furush Beit Dajan (semi-Bedouins) rely 100% on small ruminant breeding and products.

Different classes of SR breeders require diverse technical assistance options, as they rely on different knowledge, investments, risks, outputs, networks and so forth. As a rough example traditional breeders with huge flocks face major problems related to the marketing of their considerable products while recent breeders with limited flocks lack the traditional basic animal husbandry knowledge and skill.

Equally, experienced breeders often require mainly quality drugs, whereas the ones lacking experience necessitate also a skilled vet.

## 2.2. Women in SR breeding: a neglected capital

The role of women in small-ruminant farming is unquestionable in the PT. Their particular tasks on the farm in milking, dairy processing, feeding, and cleaning, put them in a very important position towards the improvement of the farm, the implementation of any change, or the learning of new techniques. To assess the role that women play in SR production PLSC undertook a field assessment and a study (10) and women agricultural engineers were hired to give special attention to gender issues. This allowed PLSC to get fruitful insights in order to better adapt innovations to women's reality in the different rural villages.

Most of the women playing a relevant role in SR breeding are over the age of forty, are familiar with SR husbandry and display a technical knowledge sourced from direct experience within their family of origin. Although all household members have a role to play in SR breeding, women deal with the most critical ones. A woman can spend from 2 to 6 hours taking care of SR, depending on the size of the flock, the season, the assistance from other family members and their skills and capacities. Once SR-related activities are over, the needs of household have to be looked after. From an in-depth analysis of the indications reported by PRA matrices development, women tend to be more confined in the local household or community setting during critical times with a raise in intensity of their labour inputs at the farm level. This means that women mobility is reduced during conflict periods and their direct access to major market networks and social events is very limited. Although this is normally motivated with issues related to their own security, it also hides an increased need for women's labour and skill at farm level, especially when it comes to livestock breeding (6).

Indications from a 1996 report about agricultural production patterns in Nablus district (VSF source) provide pictures about the different periods and the overall development trend of the SR production system vis-à-vis major political events, and raise interesting elements for discussion. A clear indication is that major intensification processes in the livestock production sector (meaning less animals with an

**Table 3**  
**Flock size and economic relevance of PLSC clients**

	1 to 10 heads self consumption	11 to 50 heads secondary income	More than 50 heads primary income	
PLSC clients	18%	55%	27%	100%
Nablus	95	248	95	65%
Tubas	19	35	21	11%
Jenin	68	85	6	24%

intensified husbandry – e.g. less time for grazing and therefore more intensive feeding system - and possibly higher productive rates) took place under the following condition: relative peace, households relying on other primary sources of income (i.e. men working elsewhere) and women in charge of the flock.

Any SR development strategy needs therefore to involve women as major stakeholders as:

- They are the ones that remain with flock even if conditions change and peace is restored,
- They are the holders of traditional technical knowledge associated to livestock breeding,
- They spend more time on animal husbandry and develop a better understanding on livestock health and performance due to her role in milking,
- Main intensifications processes in the livestock sector have taken place through them.

In addition to that women in Palestine tend to be quite organized in groups, clubs and organizations, which are often dormant but that provide good networking and mobilization whenever opportunities arise.

### 2.3. Problems related to SR breeding in the West Bank

Given the current conditions and the shrinking access to the basic natural resource base (land and water), **intensification of the agriculture production system** is not a debatable choice. It is to a large extent the only possible option available in order to satisfy increasing demands for food products, income generation and labour opportunities in the OPT. Supporting the sustainable development of this process is first and foremost a critical duty to ensure current and future subsistence of the Palestinian people, as well as to develop the basic means for a dignified existence.

The intensification process the Palestinian agriculture is undergoing takes place under specific and

constrictive conditions, which results from the current political conditions in the area. Three major areas of concern are here highlighted:

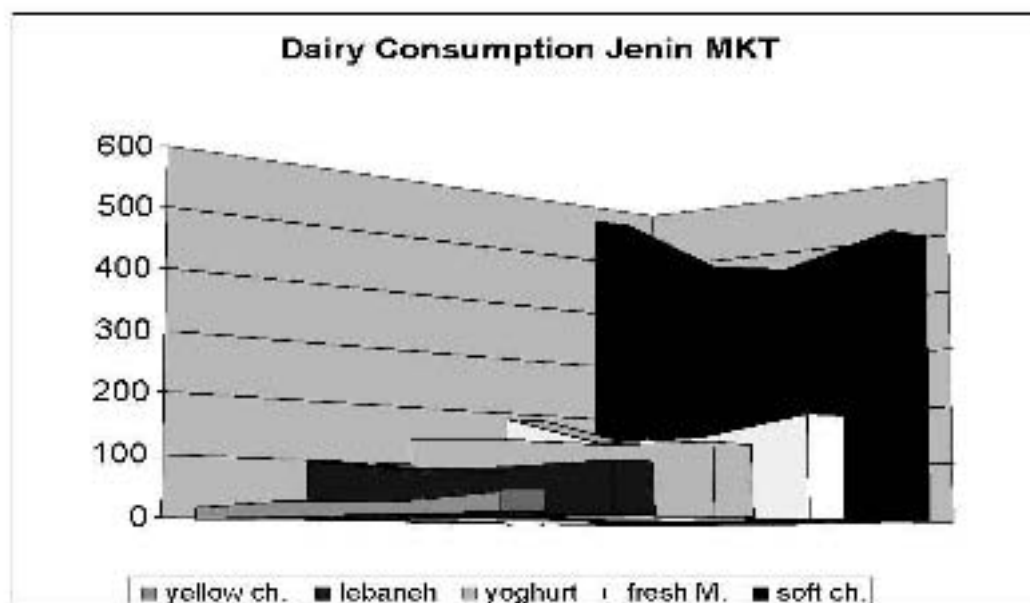
1 - Most newcomers to the sector used to be involved in diverse economic activities before the II Intifada, and most of these have **limited technical skills** related to SR breeding. Cooperation with Israel in this sector has decreased consistently since the start of the new conflict and once important sources of technical, genetic and managerial skills have faded accordingly. The SR production system has therefore to be rebuilt by carefully accounting for these factors.

2 - The **production costs** of any agricultural activity are **high and increasing**. Israel controls in fact most of productive resources (from water to feeding materials to veterinary inputs) which create a state of dependency for Palestinian breeders. Major sources of expenses for local SR breeders involve (9):

**a) Animal feeding, feeding systems for small ruminants depend to a high degree on the grazing land available to the breeder. As a result of land eviction most small ruminants in the OPT are nowadays fed with purchased resources. Animal feed, mainly supplied by Israel, which constitutes 75-80 percent of the total production cost. The feeding pattern for fattening lambs is based on concentrates, while reproductive ewes are provided with a mix of grain and concentrate feeding. The role of the short grazing season (in springtime) and of hay and crop by-products are not relevant quantitatively but still play an important role in the overall feeding system.**

**b) Animal health.** Major livestock diseases in the area include: *Brucellosis, FMD, Shoat Pox, PPR, Enterotoxaemia, Clamidy, Mastitis*, internal and external parasites, respiratory diseases and other infections. Most breeders claim that local veterinaries

Figure 2  
Seasonal dairy consumption, Jenin neighbourhood.



Source: PLSC market survey (n=40) - Seasons start from winter; amounts expressed in kgs

are very costly and often ineffective. The public vet service does not serve them properly. MoA vet service mainly deals with vaccinations for major diseases when vaccines are available. Most public vets will only be available when their status shifts from a public servant to a private entrepreneur. Quality and availability of vet drugs and vaccines are often unreliable. These factors explain the high relevance of abortion and early-mortality rates among SR in the area and the reasons why breeders do not invest money in animal health, except for some basic treatments and vaccines. (Vet treatments and preventive measures).

### 3 - Water and other facilities.

Market opportunities exist and are potentially huge, which is encouraging for sectoral development. The internal demand for animal products – especially for dairy – is high and currently satisfied by local production only to a limited extent. Major **marketing bottlenecks** relate to products availability and quality, by security-related problems, which hamper mobility and communication, and by the competition of quality and cheap imported products (farmers are subsidized in Israel).

**Consumers prefer purchasing dairy Palestinian SR products – as they are also cheaper than imported ones – provided they satisfy some basic requirements. Two major factors Palestinian consumers are particularly concerned about are fresh availability and good quality (including taste, hygiene and storability). These features currently give Israeli products an added value compared to local ones, although at a higher price.**

Room exists therefore to improve local SR dairy production in order to increasingly allow for satisfying local demand by substituting current imports as well as raising income levels at the producers' level. Furthermore women groups also expressed interest in being assisted at improving dairy processing and marketing through skills development, labour-saving technologies and credit facilities. These elements provide huge room for economic development of the SR sector and represent the basis for its economic viability.

### 4 - A strategy for development

As to the PLSC strategy the technical, organizational and financial aspects of the SR system are to be tackled comprehensively to enhance sectoral

sustainable development. This means dealing with all the domains, levels and stakeholders involved in the SR *filière*. Innovative practices cannot be not a mere application of knowledge and scientific methods to the everyday life, but they involve appropriate changes in the economical and social dimensions of the society. Any development plan that ignores the societal surrounding will not be successful as the political, administrative, cultural and environmental dimensions are to be comprehensively considered in order to achieve successful (6).

At the production level PLSC will support **technical improvements** aimed at enhancing the efficiency of natural resource management and the quality of SR production. These efforts are aimed at both decreasing major costs of production (inputs), and at improving production quantitative and qualitative levels (outputs). This is the way to rebalance cost-benefit ratios in order to increase SR breeding profitability and its financial sustainability.

**Organizational capacities** of producers are also vital to enhance the impact of PLSC efforts and the overall development of the SR sector. Existing organizations (local associations and women groups) are encouraging assets for this critical component. Better-organized producers in fact not only will facilitate development and adoption of technical innovations and improvements, but will also represent a critical actor for monitoring and evaluating PLSC technical support. Improved production and organized producers are also necessary conditions to establish and develop collaborative and profitable relationships with the different market agents, traders, shop owners and retailers. Potentials are also foreseen to link with groups of consumers wherever they exist (e.g. schools, urban women groups, etc...). Improved access to **market opportunities** is in fact critical to improve food security conditions in the OPT as well as to strengthen the economic sustainability of the SR sector. This component will support growing labour and income opportunities in rural areas while ensuring good nutritional patterns in the urban areas and villages. As Palestinian breeders will have to support PLSC technical advisory services with their own finances, these shall necessarily come through improved integration into local market dynamics.

## Literature

1. ARIJ, 1996, An Atlas of Palestine. [www.arij.org](http://www.arij.org), Jerusalem.
2. Birzeit University, 2003, Report of the Development Studies Programme. Jerusalem.
3. El Shatleh I. & Gibon A., 1999, Diversity Of Small Ruminant Farming Systems In The Nablus Area. INRA, France.
4. European Community, 2002, Country Technical Paper for Food Security in the West Bank and Gaza Strip. EC, Jerusalem.
5. Ministry of Agriculture, 2000, A Strategy For Palestinian Agriculture: 2001-2005. MoA, Ramallah.
6. Nori M., PLSC, 2003, Breeders Without Borders: Palestinian Rural Livelihoods During The Second Intifada. PLSC and VSF-Fr, Jerusalem.
7. Palestinian Central Bureau of Statistics. [www.PCBS.org](http://www.PCBS.org).
8. PENGON, 2003, The Wall in Palestine: Call To Action. PENGON, Jerusalem.
9. PLSC, 2003, Economic and Social Role of Small Ruminants in Northern Palestine.
10. PLSC, 2003, Women in the Small Ruminant Sector. Nablus.
11. Sinjelawi N., 2002, Concept of Food Security in Palestine; PLSC, Nablus.
12. UNDP, 2001, Human Rights Situation Report in the OPT. UNDP, Jerusalem.



# Positioning agro-pastoral women in livestock production: the link between socio-economic factors and improved household food security

B. Esenu<sup>\*1</sup>, S. Ossiya<sup>2</sup>, D. Serunkuma<sup>2</sup>, J. Oluka<sup>2</sup>, D. Aliu<sup>2</sup>, B. Owesigire, G. Ebiyau<sup>2</sup> & B. Olokojo<sup>1</sup>

**Keywords:** Agro-pastoral women, livestock, food security and socio-economic factors

This research was made possible through the financial support of DFID via the Livestock Production Program of the Natural Resources Institute UK. The views expressed are not necessarily those of DFID or of NRI/LPP.

## Summary

More households in Uganda own livestock than is commonly believed, underscoring the contribution of livestock to incomes, food security and poverty reduction. While technology and extension offer potential for improved livestock productivity, it is apparent that for women, socio-economic barriers may hinder equitable benefits from involvement in livestock keeping. A study was undertaken in the Teso Farming System region in Uganda in which 190 agro-pastoral households were surveyed. A model was developed to elucidate the key variables affecting improvement of food security through livestock production. The model indicates a positive association between improved food security and cattle ownership, access to veterinary services, formal education and utilization of credit by women. There is also a positive relationship of market integration as an avenue for improving household food security. However, there are socioeconomic barriers to the integration of agro-pastoral women in the market economy. There is an inverse relationship between male ownership of land and food security in agro-pastoral households. Agricultural sector policy focuses on technical aspects particularly agricultural research and extension as priority interventions. The study however indicates that for agro-pastoral women in livestock production, socio-economic positioning is important in removing bottlenecks to improved livestock production and therefore household food security.

## Résumé

**Positionner la femme agro-pasteure dans la production animale: le rapport entre les facteurs socio-économiques et l'amélioration de la sécurité alimentaire de la famille**

Plus de familles en Uganda possèdent des animaux qu'il est communément pensé, soulignant la contribution de l'élevage aux rentrées financières, à la sécurité alimentaire et à la réduction de la pauvreté. Pendant que la technologie et la croissance offrent des potentiels pour améliorer la productivité animale, il est clair que pour la femme, les barrières socio-économiques peuvent l'empêcher de profiter équitablement de son implication dans l'élevage. Une étude a été conduite dans le système d'agriculture dans la région de Teso en Uganda dans lequel 190 familles agro-pastorales ont été enquêtées. Un modèle a été développé pour élucider les variables clés affectant l'amélioration de la sécurité alimentaire via la production animale. Le modèle démontre une association positive entre l'amélioration de la sécurité alimentaire et la possession du bétail, l'accès aux services vétérinaires, l'éducation formelle et l'utilisation du crédit par les femmes. Il y a aussi un aspect positif de l'intégration au marché comme voie d'amélioration de la sécurité alimentaire des familles. Il y a cependant des barrières socio-économiques à l'intégration de la femme agro-pastorale dans le marché économique. Il y a une relation inverse entre le fait que l'homme soit propriétaire de la terre et la sécurité alimentaire dans les familles agro-pastorales. La politique agricole se concentre sur les aspects techniques, en particulier la recherche et la croissance comme priorités d'intervention. Cette étude montre cependant que pour la femme agro-pastorale dans le secteur de l'élevage, la position socio-économique est importante pour lever les blocages et améliorer la production animale et par conséquent la sécurité alimentaire des familles.

<sup>1</sup> Research Associate, Ibaren Consultants, P.O. Box 6655 Kampala, Uganda.  
Tel: 256-77-395640, email: bettyesenu@hotmail.com

<sup>2</sup> Serere Agricultural and Animal Production Research Institute, P.O Box, Soroti, Uganda, email: saraho@panoseasternafrika.org.uga

## Introduction and Background

### Shift in the thinking around the contribution of livestock to poverty reduction: the Uganda case

The livestock sector contributes 7.5% of the Uganda GDP and 17% of the Agricultural GDP. The revised PEAP 2004/5 (Poverty Eradication Action Plan which doubles as Uganda's Poverty Reduction Strategic Plan PRSP) highlighted that more households own livestock than is commonly believed, and that livestock play a major role in household incomes, with better-off households owning four times as much livestock as poorest households (7). This undergirds a shift from a livestock production orientation to a livelihood approach that is more aligned to poverty reduction (1). This strengthens the prior policy that recognized livestock ownership as a strategic entry point out of poverty. Restocking is therefore supported as a priority national expenditure. Livestock is one of the focal commodities under the Strategic Exports Initiative (Stratex) under which hides and skins exports rose to fourth export earner in 2001. However, an analysis of the Stratex indicated that aggregate benefits do not filter down to the poor, especially to women since they do not stand to benefit directly (2).

The inability of the poor and especially women to benefit from such macro-policies and interventions is one of the underlying distributional causes for the increase in poverty in Uganda in the period 2000 to 2003 from 34% to 38%. This demands a deepening of the analysis and construction of gender sensitive interventions to enable women equitably benefit from livestock and other agricultural sector opportunities.

### Agro-Pastoral Women and Livestock Keeping – The Teso Farming System (TFS) Scenario

The TFS in Northern Uganda, which comprises of the districts of Katakwi, Kaberamaido, Soroti and Kumi, is an agro-pastoral system. Women contribute at least 50% of the labor in livestock keeping, but are marginalized in the livestock ownership and benefits. The TFS region experienced a massive de-stocking due to insecurity resulting in changes in system dynamics including a situation of food insecurity and

a rise in female-headed households. The on-going restocking process has opened opportunities for women, many of whom own livestock for the first time. The TFS region therefore offers a unique opportunity for understanding the gender dynamics in livestock keeping as the TFS attempts to re-gain economic stability.

### Problem Statement

Research indicates that for Uganda returns to public expenditure on agricultural research and extension on income poverty is higher than that of spending on roads, education or health (7). While technology and extension offer potential for improved livestock productivity and returns, it is apparent that for women socio-economic barriers may greatly limit their participation, ownership and ability to enjoy the benefits from livestock production (3). Even where market issues are addressed e.g., through the Stratex, women may still not benefit due to gender distributional disparities at household level (2). This study was therefore undertaken to examine gender roles and other socio-economic aspects of livestock ownership and production, and how these impact on food security of the agro-pastoral households in the TFS.

### Methodology

The study was conducted in the districts of Katakwi and Kaberamaido. 190 randomly selected agro-pastoral households were surveyed; of these 45 were female-headed. Farmer focused group discussions and intermediary interviews supplemented the survey. Questions focused on elucidating socio-economic, gender, technological, management and extension aspects. Descriptive analysis was conducted and a regression model was developed to determine the influence of household characteristics, gender and other socio-economic factors on household food security. Household food security was computed using the Maxwell food balance sheet model

### Results and Discussion

General and Household Characteristics of Livestock Farmers and Livestock Keeping in the TFS

Average age of farmers was 43 years, with most

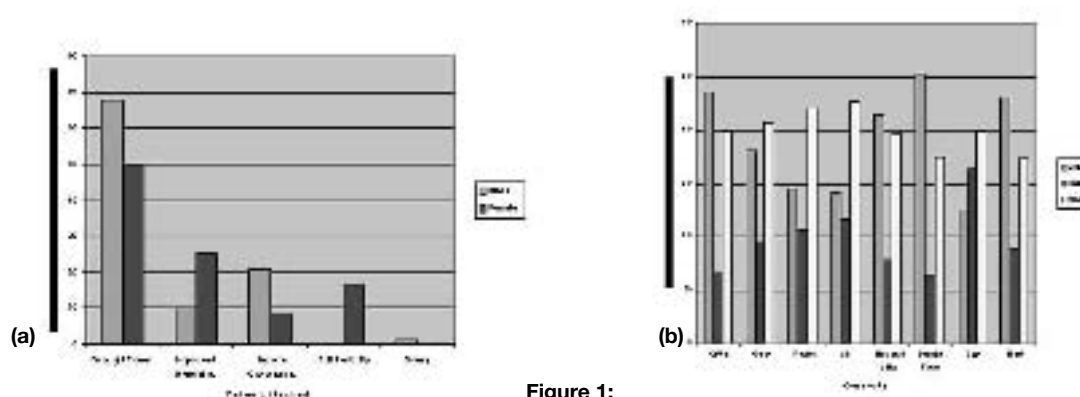


Figure 1: (a) Value attached to livestock and (b) control of benefits by male and female livestock keepers.

between 19 and 60 years. Most of the livestock farmers were male (76%). The majority of female livestock farmers had no formal education (49%) compared to only 17% of the male livestock farmers. Most male livestock farmers (62%) had a primary level education. 9% and 14% of female and male livestock farmers, respectively, had a secondary education, while only 2% and 7% of female and male livestock farmers, respectively, had reached tertiary level. Most male livestock farmers were married 95%, only 33% of the female livestock farmers were married, while 49% were widows.

### Gender Views on the Value and Control of Benefits from Livestock Keeping in the TFS

Male and female livestock farmers attached different values to livestock keeping with a convergence on the draught power (50% female and 68% male). Women placed more value on improved household nutrition and less on income generation (Figure 1 a). Men dominated control of use of benefits across commodities, although joint control was significant (Figure 1 b).

### Determinants of Food Security in Agro-pastoral Households in the TFS

Table 1 below presents regression model of the socio-economic and technological variables that contribute to food security of agro-pastoral household in the TFS.

#### Formal Education

Level of formal education attainment contributes significantly to achievement of food security of agro-pastoral households in the TFS. This supports the view that few households with an educated member starve, and usually have better access to and are able to utilize technologies and knowledge in agricultural production and nutrition (4). While current government policy focuses on attainment of primary education, the model indicates that tertiary education is particularly significant: more male livestock farmers had tertiary education.

#### Farmers Use of Improved Agricultural Technologies

There is a highly significant and positive relationship between use of improved agricultural technologies

**Table 1**  
**Determinants of Household Food Security in Livestock Keeping Households**

Household characteristics and socio-economic factors that affect food security of the livestock keeping households	Coefficient (Proportion of variability in the dependent variable (food security) that is explained by the independent variable (socio-economic factors))	Standard Error	P-value
Square root of dependency ratio	-166.567	193.349	0.390
Square root of livestock index (livestock types owned by the farmer)	88.258*	51.034	0.086
Logarithm of total land owned in acres	299.0509*	158.196	0.060
Logarithm of household size	-40.708	193.439	0.837
Logarithm age of livestock farmer	-113.869	384.724	0.768
Square root of the distances to veterinary services (accessibility of services)	187.666*	101.707	0.067
Primary level education	543.039**	277.868	0.052
Secondary level education	437.751	399.800	0.275
Tertiary level education	1397.912**	541.924	0.011
Distance to markets 3-4 km	343.359	313.574	0.275
Distance to markets 5-7 km	455.216	321.899	0.159
Distance to Markets above 8 km	389.704	343.597	0.258
Land ownership by the man = 1, 0 otherwise	-491.769*	264.224	0.064
Cattle ownership by woman =1, 0 otherwise	689.469*	397.521	0.085
Goat ownership by man =1, 0 otherwise	497.330*	275.195	0.072
Availability of credit services to female farmers = 1, 0 otherwise	534.847**	252.224	0.035
Farmers use of improved pastures =1, 0 otherwise	756.609*	434.206	0.083
-cons	2274.694	1476.194	0.125

Number of observations= 188. Coefficients represent the proportion of influence the factor has on his dependent variable in this case food security. \*, \*\* and \*\*\* represent levels of significance at 10%, 5% and 1% respectively.

and food security. However, very few agro-pastoral livestock farmers in the TFS are actually using improved technologies: less than 1% use artificial insemination, only 2.5% use improved cattle breeds, 1.5% use improved breeds and 6.32% use improved pastures. Far less women use the improved technologies for example, of those who use improved pastures: only 8.3% are women, while 91.7% are men. The TFS houses the major national agricultural technology research institute mandated to generate innovations for dryland environments. The low use of technologies undermines the investment into research and extension.

### **Livestock Ownership**

Men dominate livestock ownership across species including poultry. Thus men have now dominated poultry ownership with the increase in poultry market integration and therefore poultry do not play a significant role in household food security. The model indicates that where women own cattle, there is better food security; on the other hand, ownership of cattle by men does not necessarily improve food security. Among female livestock farmers, widows are more likely to own and control cattle while married and single women have limited or no ownership or control. Goat ownership by men is positively related to household food security. This could reflect the greater willingness of men to dispose off goats (as compared to cattle) to address household food security needs. The model also found that households with higher livestock diversity had a better food security status. Only boy children own or inherit livestock.

### **Land Ownership**

Ownership of land is predominantly vested in males. The model indicates a negative and significant impact of male ownership of land on the amount of food available to the agro-pastoral household. (1) Observe that male landowners dictate what to produce, how much and in what season and also control the use of benefits. Land size positively impacts on food available to the livestock-keeping households.

### **Credit**

Availability of credit to female farmers is a positive and significant factor that enhances food security in agro-pastoral households. Women are however more constrained in access to credit than men. Lack of access to information about the existing financial services; lack of collateral; high interest rates; harsh treatment from the loan recovering officials; short pay back period and insecurity are challenges cited by farmers as limiting access to credit. Interest rates and lack of collateral often exclude poor farmers especially women from the benefits of the credit services (3).

### **Access to Veterinary Services**

The model shows that access to veterinary services

has a positive and significant impact on household food security. However female farmers on average utilize veterinary services fewer times in a year (thrice) than the men (five times). Major challenges to access include high costs, long distances to service points, and lack of information. For women, a predominance of male service providers presents a cultural barrier.

### **Market**

Distance to markets affects agro-pastoral household food security, although not as a significant variable. Male and female livestock farmers cited some common market constraints including low profits. Women ranked high market dues and multiple taxation, and distant markets, lack of means of transport and poor post-harvest storage as other significant constraints. Men ranked few physical markets, distance to markets and high market dues as significant. Women's focus on household welfare (as indicated in the value that they attach to livestock) has limited their integration into the market economy.

### **Policy Recommendations**

The model indicates that formal education, and in particular tertiary education, has a significant role in ensuring food security in agro-pastoral households. Current government policy focuses on Universal Primary Education (UPE), with subordinate goals of tertiary education and literacy attainment. This presents a challenge for women who are mostly illiterate; there is need for greater attention to Functional Adult Literacy and to link this with livestock keeping knowledge, innovations and extension delivery. UPE deprives agro-pastoral women of the labor contribution of children with whom they traditionally share livestock keeping roles and responsibilities. There is a need to substantively study the impact of livestock keeping demands on UPE outcomes and vice versa given that less than 25% of children initially enrolled reach graduation (6).

Investments into research and extension as Uganda national budget support priorities are negated by lack of attention to ensuring adoption of technologies (8, 10). Male and female farmers select and utilize different technologies and interventions based on their ownership, access and control of resources (8). Women also are more likely to select technologies that address food security, however, technology generation and dissemination are generally more market oriented (9). Adoption is bottle necked by socio-economic issues and supply side issues that are largely gender related (9, 10).

Female ownership of livestock is traditionally limited by cultural norms, and increasingly shaped by market/liberalization forces. There should be stronger emphasis on strategies to ensure female ownership of cattle such as gender analysis of the restocking process. There should be more attention on the role of small ruminants in agro-pastoral household food

security given the less significant social, prestige and market status accorded by men to these species.

Unless women can own or have stronger decision-making control over land, food security remains compromised in agro-pastoral households, a finding reflected in the PEAP 2004/5. The Land Act has been amended to support co-ownership by women, and also to provision for Communal Land Associations: these provisions remain challenges for practice/implementation. Currently rural credit financial services are business orientated and not suited to agriculture sector needs and even less so to the needs of women (8, 9). An agricultural sector (with keen attention to the unique needs of the livestock sub sector) and gender strategy for rural credit are needed.

Government has prioritized extension delivery to ensure a greater poverty focus via a public-funded, private delivered, client driven and oriented approach, with women as priority clients. Veterinary service delivery remains market oriented, male focused and largely male delivered creating significant financial and cultural barriers for women. There is need for a review of veterinary services to make them more gender sensitive.

The PEAP 2004/5 posits a scenario of household food security via market integration rather than via subsistence production. The study indicators point to a continued dependence on subsistence rather than a growth of a market orientation among agro-pastoral women. Macro-policies such as liberalization, privatization, urban centric agro-processing and markets, crop-focused infrastructure marginalize

agro-pastoral women and limit their opportunities for market integration. There is a need for a more substantive, realistic and pragmatic articulation of the dynamics between attainment of food security and achievement of market orientation in the light of women's priorities and limitations.

## Conclusion

PEAP 2004/5 highlighted that continued achievements in national aggregate income are undermined by a rise in poverty levels driven by distributional disparities with women as one of the more disadvantaged groups. This points a greater need for attention to sub-household level interventions that affect welfare, including food security, of women and children in particular. The livestock sector offers potential for addressing household poverty, for greater market integration, and for more sustainable livelihoods. In the agro-pastoral TFS, women contribute at least 50% of the livestock production labor, but currently do not equitably benefit from their investments. There is potential benefit from government investment in research and extension as a means to improve the production of agro-pastoral women involved in livestock keeping. However, this potential is greatly limited by lack of keen attention to gender related socio-economic issues at the household level and at the market interface. There is a need to strategically address these issues in policy and interventions in order to position agro-pastoral women to ensure better household food security and equitable benefits from keeping livestock.

## Literature

1. Asiimwe J. & Nyakojo E., 2002, Included Yet Excluded. A Study of Women's Land Rights in the Districts of Pallisa and Kapchorwa. The Uganda Land Alliance and Action Aid Uganda.
2. Booth D., Kasente D., Mavrotas G., Mugambe G. & Muwonge A., 2003, Poverty and Social Impact Analysis. The Strategic Exports Initiative in Uganda. Oxford Policy Management Institute.
3. Heffernan C., Misturelli F. & Nielsen L., 2001, Restocking and Poverty Alleviation. Perceptions and Realities of Livestock- Keeping Among Poor Pastoralists in Kenya.
4. Kaliisa W.M., 2002, Adult Literacy and Adoption of agricultural Technologies: Reflection on the Dimensions, Applications and Implications of a Technology Policy Framework. The Functional Adult Literacy Program, Ministry of Gender, Labor and Social Development, Government of Uganda.
5. Ministry of Agriculture, Animal Industry and Fisheries, 2000, Plan for Modernization of Agriculture: Eradicating Poverty in Uganda, Government Strategy and Operational Framework.
6. Ministry of Education and Sports, 2003, 10<sup>th</sup> Education Sector Review, Kampala, Uganda.
7. Ministry of Finance, Planning and Economic Development, 2005, The Poverty Eradication Action Plan. 2004/5 – 2007/8. Gouvernement of Uganda.
8. Ossiya A.S., 2003, Review of PEAP Pillar III: Actions, which Directly Increase the Ability of the Poor to Raise their Incomes. Civil Society Agricultural Sector Working Group.
9. Ossiya A.S., Esenu B., Byenkya S., Aliguma L., Ossiya D. & Akello B., 2005, Stakeholder Analysis Report. Characterizing the Adoption of Agricultural Technologies and Innovations by Resource Poor Farmers on a Gender Basis. Ibaren Consultants, Kampala, Uganda.
10. Sserunkuma D., 1999, Agricultural Technology Economic Viability and Poverty Alleviation in Uganda.

## ORIGINAL ARTICLES

## Session 3

### LIVESTOCK AND LIVELIHOODS



Poultry presented for vaccination – Comoros islands © (Michaël Dehaspe, 2000).

## INTEGRATED POVERTY ASSESSMENT FOR LIVESTOCK PROMOTION: THE CASE OF VIETNAM

Otte, Joachim<sup>\*1</sup>, Roland-Holst, David<sup>2</sup>, Kazybayeva, Saule<sup>1</sup> & Maltoglou, Irini<sup>1</sup>

Keywords: Vietnam, Households, Poverty, Livestock, Econometric modelling, Income sources

### Summary

The main theme of this paper is that livestock production can make a significant contribution to the livelihoods of the poor and offers substantial scope for expansion to alleviate poverty. This potential is far from being realized, however, and there is much wider scope for the promotion of livestock, especially among poor rural communities, by national and international policy makers. Using Viet Nam as case study, this paper describes how information distilled from a

### Résumé

#### Promotion de la production animale intégrée dans l'évaluation de la pauvreté : le cas du Vietnam

Ce document vise à montrer que les productions de l'élevage peuvent contribuer significativement à la subsistance des pauvres et offrir des visions de croissance pour diminuer la pauvreté. Ce potentiel est loin d'être réalisé, cependant, et des visions plus larges du développement de l'élevage existent, particulièrement parmi les communautés rurales, au

<sup>1</sup> Pro-Poor Livestock Policy Initiative (PPLPI) of the Food and Agriculture Organization, Via delle terme di Caracalla, 00100 Roma, Italy ([joachim.otte@fao.org](mailto:joachim.otte@fao.org), [saule.kazybayeva@fao.org](mailto:saule.kazybayeva@fao.org), [irini.maltoglou@fao.org](mailto:irini.maltoglou@fao.org))

<sup>2</sup> Rural Development Research Consortium at the University of California, Berkeley ([dwrrh@are.berkeley.edu](mailto:dwrrh@are.berkeley.edu)).

variety of sources can be combined in an analytical approach termed 'integrated poverty assessment for livestock promotion' (IPALP), which aims at improving the general understanding about the role of livestock in poverty alleviation, while at the same time strengthening the basis of evidence on how policies can best support pro-poor development. Using a national and a sub-national social accounting matrix, policy experiments are conducted to assess the impact of an economy-wide policy of WTO-style trade liberalization, with and without concomitant livestock promotion. The results indicate trade liberalization with concomitant livestock promotion has higher overall positive impacts and plays an important role in offsetting adjustment costs. Tools for this kind of ex ante assessment can support more effective policies for outward oriented growth and poverty alleviation.

## Introduction

It is widely recognized that expanding capacity for livestock production and marketing can be a potent catalyst for rural poverty alleviation in developing countries. Livestock have a variety of characteristics that make them important contributors to sustainable rural development. They produce marketable products (meat, milk, eggs) from scalable household and community production systems, which are generally less vulnerable to critical harvest timing than many crops. By providing agricultural products with relatively high income elasticity, livestock are particularly attractive as a means for rural households to participate in urban-based economic growth trends. Livestock are also productive assets, contributing directly to output through animal traction and indirectly as a store of wealth for future investment. Finally, they can contribute to soil fertility and recycling of agricultural waste. With these and other advantages in mind, the aid community has consistently promoted livestock, especially among the poorer rural communities, and the FAO's Pro-Poor Livestock Policy Initiative (PPLPI) is a prominent example of this commitment.

In this short paper, we provide an overview of the economic assessment tools under development by the Pro-Poor Livestock Policy Initiative. The paper summarizes analytical techniques that have been brought together for evaluating Pro-Poor Livestock Policy Interventions, referred to as integrated poverty assessment of livestock promotion (IPALP) and reports on their application to Viet Nam as a case study. We realize that every country has characteristics that make it unique, and each will yield special insights under the proposed analysis, but it is hoped that uniform standards for economic assessment will help identify the general properties of pro-poor livestock policy interventions that most effectively contribute to poverty alleviation and sustainable rural development.

### Overview of the IPALP Facility

To improve general understanding about the role of livestock in poverty alleviation, while at the same time strengthening the basis of evidence on how policies can

travers de programmes nationaux et internationaux. Illustrant le cas du Vietnam, ce papier décrit comment les informations de diverses sources peuvent être combinées en une approche analytique appelée «Etablissement intégré de la pauvreté pour la promotion de l'élevage» (IPALP), qui vise à améliorer la compréhension générale du rôle de l'élevage dans la résolution de la pauvreté, et en même temps renforcer les évidences relatives à la façon dont la politique peut favoriser la réduction de la pauvreté. Les résultats indiquent que la libéralisation du commerce associée à la promotion de l'élevage a un plus grand impact positif global et joue un rôle important dans la neutralisation de l'ajustement des coûts. De tels outils peuvent rendre la politique plus efficace pour la croissance extérieure et la diminution de la pauvreté.

best support pro-poor livestock development, a suite of analytical techniques is being developed covering four component areas of economic assessment:

- **Analysis of initial macro-economic conditions**

This component surveys the recent history of aggregate indicators to set the stage for examination of the more detailed determinants of household welfare.

- **Micro-economic analysis of initial conditions**

This component provides a systematic survey of existing patterns of household production, employment, asset holding, expenditure and other conditions. The micro results are further divided into three parts:

- a. Summary statistics and tables extracted from LSMS survey samples and other detailed data.
- b. A synoptic atlas of digital maps presenting selected micro-economic results.
- c. Models of household-level production systems, labour supply, and consumption geared to better understand the behavioural basis of household economic activity.

- **Dynamic simulation of policies and external economic conditions**

These include, but are not be limited to, pro-poor livestock policy interventions, development strategies, trade policy, WTO accession, market reform, tax policies, etc. Emphasis is on the estimation of the local impacts of these policies.

- **Microeconomic assessment of PPLPI and Related Policies**

In concert with national and international policies and market forces, to more clearly identify patterns local economic adjustment and, in particular, their implications for poverty alleviation. In this component, a broad spectrum of poverty assessment tools will be implemented.

The basic objective of this approach is to support more evidence-based livestock policies with deeper

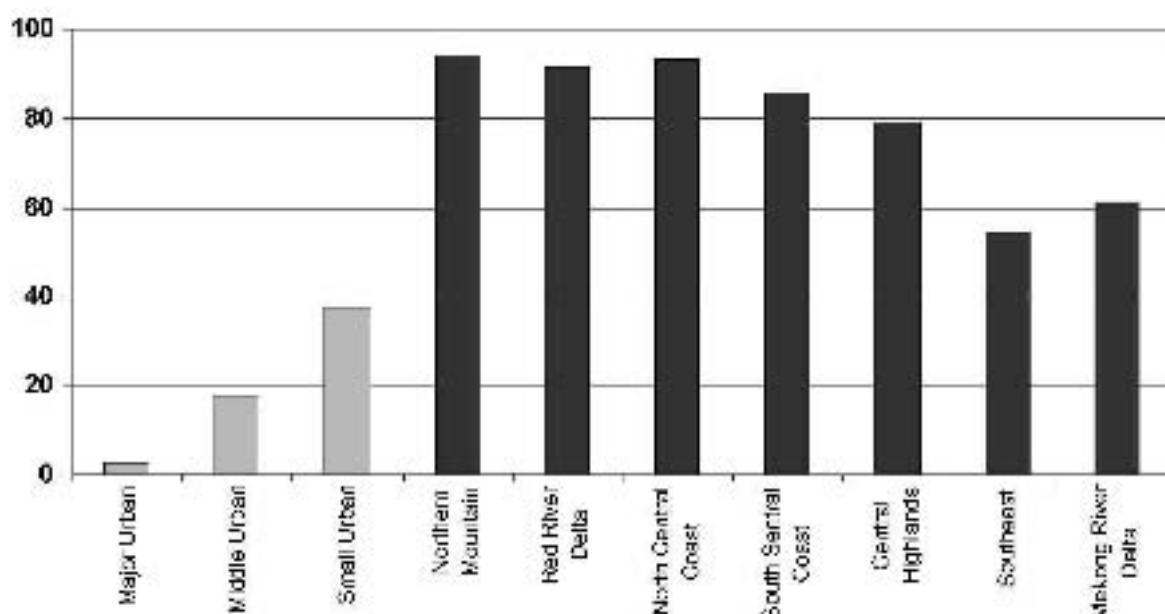


Figure 1: Proportion of households owning livestock by region.

insight into economic conditions, behavior, and market linkages.

### Applied Household Analysis

Amongst other sources, data from the second Vietnamese Living Standard Measurement Surveys (VLSS II) carried out in 1997-98 and 2002 were used to assess patterns in livestock and land ownership, household income and its components. In the larger urban areas, livestock ownership is relatively low, but higher in small urban areas (Figure 1).

On the other hand, most households in the rural areas own livestock with the exception of the rural Southeast region where the proportion declines to 1 in 2 families. Livestock ownership is particularly high in the mountainous areas, in the Red river delta region and along the Central coast. Households mostly own pigs and chicken, followed by cattle, ducks and other animals. Pigs are owned by 47.6 percent of households and 51.6 percent of households own chicken. More than 7 out of 10 households own pigs in the rural Northern mountains, Red river delta and central coast areas. The same trends arise for chicken ownership in these regions and also for the rural Central highlands.

Urban incomes are generally higher and more diversified than in rural areas, and in the latter livestock plays an important role generally and for lower income groups in particular. Regionally, the wealthiest rural areas are the rural Southeast region and the rural Central highlands, while the poorest rural populations are the Mekong river delta and the North-Central coast. In urban areas the main contributors to total household income are self-employment and other income sources. This starts to change in urban transition areas, and agricultural income in the rural sector eventually ranges from 41 percent in the rural Southeast household income to 70 percent the Central highlands.

Livestock income has important distributional characteristics, both geographically and especially in equity terms. As a share of household income, livestock income is highest in the rural Northern Mountains, Red river delta, Central coast and Central highland areas. More importantly for our purposes, livestock ownership and income is more important for (non-marginal) poor households than for others in Vietnam. Figures 2-7 make this dependence clear from several perspectives.

Firstly, figures 2-5 demonstrate that ruminants (mainly water buffalo) and pigs are more prominent in the asset portfolio of the lower income households. Figure 6 shows that livestock is a larger portion of household expenditure requirements; the lower is household income, while figure 7 indicates the same pro-poor aspect of income from livestock.

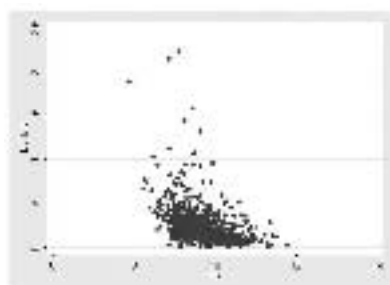
For policy analysis, figures 2-5 are particularly important. This is because of the simple fact that economic policies will benefit the poor if they raise returns to asset classes that belong to them. Clearly, livestock is especially important to the poor, and thus properly formulated livestock policies will be pro-poor.

### Modelling Household Responses to Policy Change

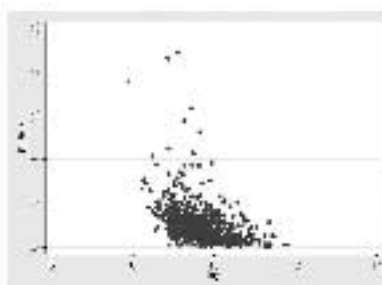
Rural households are integrated production and consumption units, and interactions between these two kinds of behaviour need to be well understood by those targeting incomes or other economic characteristics of this group. In the IPALP, we use econometric methods to estimate both production and consumption functions, integrating them on the analytical platform of simulation models to reveal how they interact to determine local outcomes. The prototype versions of both macro and micro simulation



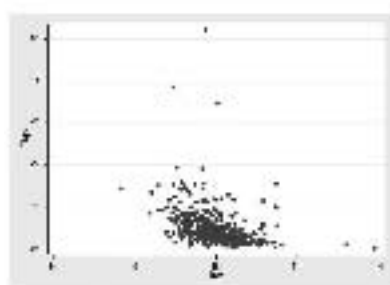
**Viet Nam Household Living Standards Survey, 2002 (Dataset)**  
**Variables**



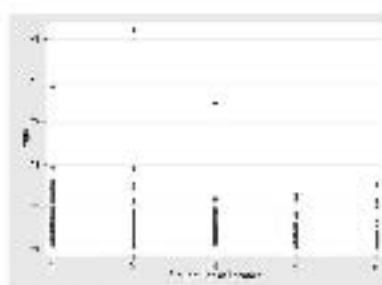
**Figure 2: Asset value of bovine animals as a multiple of household income;**



**Figure 3: Asset value of bovine animals by income quintile;**



**Figure 4: Asset value of pigs as a multiple of household income;**



**Figure 5: Asset value of pigs by income quintile**

models are calibrated to production and consumption functions from the underlying Social Accounting Matrices and survey data.

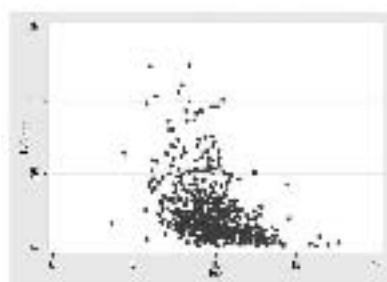
An important channel for improving rural incomes is the labour market, which can provide cash employment for farm residents locally and, if they are willing to migrate, regionally, nationally, and even internationally. Direct local earnings are important and many rural communities exhibit complex markets for off-farm employment, including both cash and in-kind compensation. Generally speaking, however, the primary driver of rising living standards in this channel is remittances from workers who migrate to regional or national urban markets. Not only does this migration provide rural households with access to more dynamic economic growth trends, but cash remittances overcome many obstacles to local capital accumulation, investment, and enterprise

development. These new sources of savings also reduce the vulnerability of rural households to economic shocks and thereby reduce their relative risk aversion, promoting adoption of new practices and other forms of entrepreneurial risk taking. This latter category surely includes livestock development.

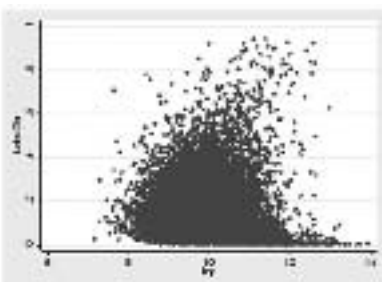
Thus, the labour-livestock link is a two-way street, and policies to promote livestock development should be grounded in a better understanding of the ways in which household allocate labour across its alternative uses. We do precisely this with the econometric component of IPALP, using detailed occupational choice models. Ultimately, these are intended for use in micro-simulation, where individual household responses to external policies and events are modeled.

General equilibrium models are used to assess the local impacts of national and international policies,

**Viet Nam Household Living Standards Survey, 2002 (Dataset)**  
**Variables**



**Figure 6: Expenditure on livestock products as a share of household income;**



**Figure 7: Income from livestock as a share of household income.**

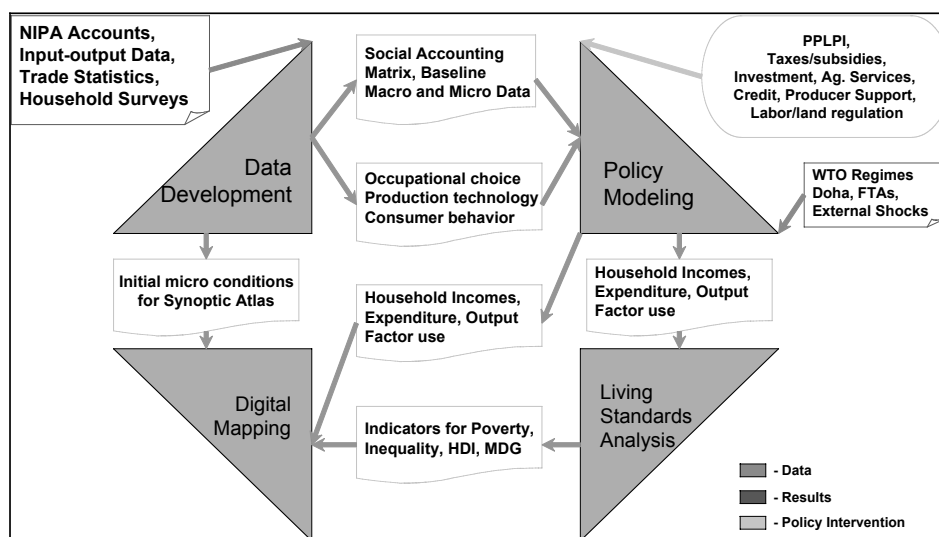


Figure 8: IPALP Flowchart.

evaluating how these events can be influenced by pro-poor livestock policies and related development initiatives. In an era of globalization, there is a generally held belief that greater external orientation can confer aggregate growth benefits. Despite this apparent consensus, however, the detailed incidence of trade and growth, among many economy-wide trends, is not so easy to generalize. Indeed, policies targeted at poverty alleviation in particular need a solid empirical basis to identify the detailed components of the adjustment process. Although it may be widespread in many developing countries, the experience of poverty is ultimately microeconomic in nature and policies designed to overcome it need to trace incidence to the household level. Figure 8 provides a schematic overview of the IPALP modeling approach.

### Predicting the Impact of Selected Policy Scenarios

The model is dynamic and covers the period 2004-2010 in the present application to Viet Nam's Northern mountain region (NMR). In the first case, we examine a dynamic baseline situation, representing 'business as usual' or no change in status-quo policies. The second scenario simulates Viet Nam's accession to the WTO, assuming that all tariffs and export subsidies are abolished over the period 2005-2007 (equal steps). Finally, we assume that a livestock policy is implemented over the same period that increases productivity in that sector by about 25% over five years.

It should be emphasized that the predictions are preliminary and cannot be considered definitive until the prototype model is more completely tested. Having made this caveat, however, these results indicate the complexity of the adjustment process facing policy makers, as well as the potential for pro-poor intervention. Comparison against the baseline scenario, the WTO scenario confers most of its benefits on urban populations, where significant poverty

reduction occurs. Some of these gains are propagated to the rural poor, but to a low degree, and the result for the NMR is quite small since rural populations dominate. By contrast, when WTO accession is coupled with livestock promotion, poverty reduction is less in urban areas, but very significant gains are conferred upon the poor rural majority, while gains for the urban poor are reduced. The fall in rural poverty headcounts is more than 30% higher, and measures of poverty depth (p1) and severity (p2) are mitigated even more dramatically, relative to the WTO accession only scenario. Across the region, over 27% of the population is predicted to leave poverty (over 1.8 million people from a 2002 NMR population of 10.76 million).

The main reason the third scenario is significantly more pro-poor is that rising agricultural productivity increases rural household participation in the WTO-induced economy-wide expansion. Clearly, national level policies combined with local interventions can sharply alter patterns of poverty incidence. It is equally clear from these results, however, that increasing the scope of poverty alleviation (the Livestock Promotion scenario) can entail tradeoffs for other groups (urbanites in the WTO scenario), complicating policy choices.

### Conclusions

For PPLPI, Integrated Poverty Assessment (IPA) of this kind can serve as an important evaluation tool both *ex ante* and *ex post*. Analysis of initial conditions can improve identification of target groups and anticipate their needs for effective program support and market access. Whether the desired policy changes will actually take place depends, to a large extent, on how effectively proponents can present their arguments to policy and decision makers at various levels, within the context of the prevailing political economy. Tools such as these will support the design, promotion, and implementation of more effective policies for equitable and sustainable economic growth.

# GOATS, A PATHWAY TO FOOD SECURITY: CASE OF PASTORAL WOMEN GROUPS IN SOUTHERN ETHIOPIA

G. Gebru<sup>\*1</sup>, S. Desta, D. L. Coppock & S. Tezerra

Keywords: Goat marketing, Pastoral groups, Economic diversification

## Summary

An important change in the recent development of Ethiopia's livestock export capacity deals with the sale of chilled and frozen sheep and goat meat to the Middle East. This situation provides an opportunity for producers to directly supply animals for export. In partnership with AU/IBAR and Action for Development (AFD)--a local NGO, the Pastoral Risk Management (PARIMA) project of the Global Livestock Collaborative Research Support Program (GL-CRSP of USAID) took a first step in Ethiopia to raise the awareness and build

capacity among women's groups to play active roles in supplying small ruminants to the new export abattoirs. This process began by creating women's groups in southern Ethiopia in 2001. A year after initiating the joint activity, these groups have supplied thousands of goats to exporters. Future challenges include field operation issues like not effecting payments upon delivery, and poor access to information on market price, and misperception among local traders. Small ruminant production and the process of trading for export may play a vital role to initiate a saving and investment tradition among pastoral households. This may lead to broader opportunities for economic diversification into the non-pastoral sector, and help lift local communities out of poverty traps.

## Résumé

**La chèvre, une piste pour la sécurité alimentaire: cas de groupes de femmes pastorales au sud de l'Ethiopie**

Il y a eu un changement important dans le récent développement de la capacité d'exportation de l'Ethiopie de viande froide et de viande congelée de mouton et de chèvre au Moyen-Orient. Cette situation offre l'opportunité aux producteurs de fournir directement de la viande à l'exportation. En association avec UA/BIRA et action pour le développement (AFD) - une ONG locale, le projet pastoral de gestion du risque (PARIMA) du Programme Global de Support à la Recherche Collaborative pour le bétail (GL-CRSP of USAID) a entrepris les démarches en Ethiopie pour améliorer les prises de conscience et la capacité de construction parmi les groupes de femmes pour jouer un rôle actif dans l'approvisionnement en petits ruminants des nouveaux abattoirs d'exportation. Ce processus a commencé par une création de groupes de femmes au sud de l'Ethiopie en 2001. Un an après l'initiation de ces activités de co-gestion, ces groupes ont fourni des milliers de chèvres pour l'exportation. Les futurs défis incluent des problèmes de terrain tels que l'absence de paiement à la livraison, et le manque d'accès à l'information sur les prix du marché, ainsi qu'une mauvaise perception de la part des commerçants locaux. La production de petits ruminants et le processus de commercialisation pour l'exportation peuvent jouer un rôle vital pour initier une tradition d'économie et d'investissement parmi les familles pastorales. Cela peut conduire à de plus grandes opportunités de diversification économique dans le secteur non pastoral et aider les communautés locales à sortir de la pauvreté.

## Introduction

The Borana pastoral and agro-pastoral societies in southern Ethiopia are enduring a downward spiral of increasing poverty and food insecurity (1). The situation is exacerbated by a lack of economic development, as pastoralists and agro-pastoralists

remain heavily dependent on an increasingly unstable base of traditional livestock production for their survival (2). We postulate that a modest degree of pastoral economic diversification, as facilitated through improved livestock marketing systems, could

Contact author: \* Dr. Getachew Gebru, Global Livestock Collaborative Research Support Program, Pastoral Risk Management Project (PARIMA), C/o ILRI Ethiopia, P.O. Box 5689, Addis Ababa, Ethiopia.  
Phone: 251-1-463215, and FAX: 251-1-461252  
E-mail: [g.gebru@cgiar.org](mailto:g.gebru@cgiar.org)

have large benefits for pastoralists in southern Ethiopia in terms of risk management, wealth conservation, improved resilience to shocks, and heightened food security (3).

The PARIMA project embraces pastoral risk management as a possible intervention pathway, because rangelands are highly variable environments prone to periodic drought. Second, pastoralists have been traditionally well-adapted to manage risk, but some conditions have changed in recent times that limit effective responses—this prominently includes population growth and associated resource-use constraints. Improving pastoral risk management therefore involves (1) things like: How to empower the rural poor to better protect themselves from drought or economic shocks; and interventions that include education, marketing, aspects of livelihood diversification, and improved use of information and other resources.

### **Parima Market Intervention: Approach**

The outreach staff of PARIMA took a step-wise approach to creating links between pastoral communities and other players in a livestock marketing chain. One vision in this component of the PARIMA project is that our newly formed pastoral community groups (3) could merge and consolidate themselves, step-by-step, into a voluntary cooperative union to attain economies of scale and acquire strength to become a major player influencing livestock marketing dynamics in Ethiopia.

In the following section we will outline the major activities and results in this process. It has been fortuitous that coincident with our activities, major export channels have re-opened from Ethiopia to Middle-Eastern and Gulf State markets—particularly for small ruminants. There has also been a proliferation of private livestock exporting and processing enterprise capacity in Ethiopia during recent years as a response to economic liberalization starting in the 1990s.

These combined factors have undoubtedly combined to affect patterns of livestock supply response we have observed.

### **The outcomes of the Parima Intervention**

#### **Educating Pastoralists to the Structure and Function of Livestock Marketing Chains**

As an initial step, PARIMA outreach began to facilitate communication among pastoral groups and potential livestock buyers. The tour members learned about: (a) minimum required quality, size, and health criteria that export markets demand; (b) associations between grading and pricing; and (c) the growing demand for specific grades of small ruminants for export.

A forum was organized during October 2003 so that tour participants could further discuss marketing issues with export enterprise owners and managers. The pastoralist tours provided the first step towards identifying mutual needs of all parties. Linking producers and buyers directly in a marketing chain, and enabling pastoralists to eventually manage some marketing functions themselves, put both parties in a stronger position. Unless pastoralists are organized to handle some of the market functions in the marketing channel, however, a large proportion of the profit will continue to end-up with middlemen.

#### **Educating Policy Makers and Livestock Exporters to Pastoral Life in Southern Ethiopia**

As a follow-up to the tours and meetings described above, PARIMA—in a joint activity with AU/IBAR—conducted the first tour for policy makers and the owners and managers of livestock export enterprises to the Borana Plateau. This tour helped the political and business leaders better understand the pastoral livelihoods as well as the livestock production potential of the rangelands. The political and business leaders well appreciated the livestock potential of the rangelands, but major concerns still focused on poor animal quality and health in relation to international market standards. It was also noted that marketing enterprises must work to assist pastoralists with animal off-take to help mitigate negative effects of drought-related shocks, and improve food security. This would occur by creating a direct marketing link between pastoral producers and buyers. The PARIMA outreach has funded training of selected pastoral community representatives in the principles of small-scale business development and management over the past three years. Thirty-nine pastoralists (24 females, 15 males) and five development agents (two females, three males) were selected from participating groups. The training was tailored for illiterate people and was intentionally focused on livestock marketing and related business activities.

It is anticipated that securing alternative streams of income could enable some pastoralists to diversify their livelihoods into non-pastoral businesses activities and contribute to an improved scope for risk management.

#### **Livestock supply**

Following the tours, workshops, seminars, short-course, and loan disbursement from AU/IBAR, 10 of the pastoral community groups (333 members) as well as the Tile Mado Cooperative are actively engaged in small ruminant trading. These groups have provided over 20,000 head of small ruminants (mostly goats) to exporting firms. A cross-border harmonization

initiative involving pastoralists in northern Kenya and southern Ethiopia, spearheaded in 2001 by PARIMA and the Community Initiative Facilitation and Assistance (CIFA), a non-governmental organization, has probably facilitated this flow of livestock across the border (3).

The supply response of the 10 pastoral groups is only a small part of a larger picture for livestock marketing in southern Ethiopia during the past year. Besides the impact of the four major exporters, a large number of local business people in urban centers on the Borana Plateau re-directed their investments towards livestock trade to supply a suddenly greatly expanding market for small ruminants.

### **Competition among buyers and need for contractual agreements**

Offered prices briefly went from Birr 3.50 to Birr 5.50 per kg as competition among buyers intensified. Local traders and pastoral community groups were not in a position to bargain for a higher price. The need for the local traders and the community groups to organize themselves into a marketing association or cooperative union is becoming apparent. As the market involvements (and risks) have grown, the need for legal contracts among pastoral producers and exporters has become apparent. A contract agreement between pastoral communities and export firms was drafted and signed by both parties to facilitate future transactions between export abattoirs and the pastoralists.

### **Future Plan**

The market experience the pastoral community groups has gained in the past year has inspired them to also engage in cattle and camel trading (3, pers. obs). They desire to widen their business horizons outside of livestock as well. Community leaders have asked the exporters to help them find domestic and export markets for cattle and camels.

The pastoral community groups consider the previous year as a learning experience. Almost all of these community groups plough back a portion of profit they earn from sheep and goat sales into the marketing business to remain competitive against local, urban-based traders (Halima Ferenjicha and Amino Ali pers. comm., chairladies Kersa Mele and Bitata women groups respectively). All community groups have plans to use other portions of their profits to begin new non-livestock enterprises to diversify their livelihoods. All the pastoral groups want to graduate into formally recognized livestock marketing cooperatives, and later into a greater cooperative union, so they can expand their market share and raise their involvement in directly supplying the export market (3).

### **Constraints**

Helping traditional pastoralists enter a marketing chain is a difficult and time-consuming task that cannot be done all at once and it requires perseverance, long-term planning, and provision of quality technical support (3). Future challenges include;

- Overcoming the deep rooted suspicions towards outside traders which have inhibited formation of marketing partnerships.

- The traditional attitude among major livestock buyers that discount the potential of rangeland areas, and pastoral producers, to reliably supply livestock.

- Field agents for export enterprises favouring arrangements with local traders rather than those with pastoral community groups.

- Failure of buyers to provide payments upon delivery, and delays in transferring payments through local agents or banks.

- Occasional and sudden down-turns in purchase prices, without prior notification to pastoral communities.

- Occasional failure on the part of buyers to honor purchase orders and time of collection.

- Poor access to information on market prices, volume, weight range, and species in demand—which are often determined by the importers—has limited the pastoralists' ability to adjust supplies in a timely manner.

- Mis-perceptions observed among local traders towards linking pastoral communities and exporters.

### **Conclusions**

The marketing initiative and their direct involvement increased the knowledge of the pastoralists in Borana plateau on the availability and usefulness of the alternative market outlets within the country (central abattoirs). They have also acquired better skill on handling the animals to mitigate weight or death losses before delivery. The new market outlet will allow them to exploit price and demand differential that may occur between the two markets in the two neighboring countries, Kenya and Ethiopia.

The inclusion of pastoralists into the livestock marketing chain is encouraging. Some prevailing circumstances that helped to realize the success in such a short period of time include the high livestock potential in the rangelands; the opening of export

market for small ruminants; the fair price offered by the buyers; the trainings given to the groups in business management before they embark in business; and the loan received from AU/IBAR augmented their financial capacity and enabled the pastoral groups to heavily enter into the business. The operation began with a single and less complex activity marketing species with high market demand such as sheep and goats rather than cattle or camel, which had low demand, increased the likelihood of success. Moreover the business was driven and controlled by members of the community who display considerable trust and self-confidence. The approach followed was participatory learning while doing, which has involved continuous learning and uninterrupted planning and re-planning processes. It is evident that the pastoralist groups can become vibrant business entities given that they obtain appropriate technical support and skill

in business and resources management to make informed decisions.

### Acknowledgement

Core research for the PARIMA project has been conducted under the auspices of the Global Livestock Collaborative Research Support Program (GL-CRSP) of the United States Agency for International Development (USAID) within the terms of grant no. PCE-G-98-00036-00. The PARIMA project is one of several projects managed under the auspices of the GL-CRSP in East Africa. The USAID Mission to Ethiopia funds the outreach component of the PARIMA project. Thanks are extended to our partners in the market intervention, namely The Oromia Pastoral Commission, Action for Development (AFD), Livestock Marketing Authority, and AU/IBAR.

### Literature

1. Coppock D.L., 1994, The Borana Plateau of Southern Ethiopia: Synthesis of Pastoral Research, Development, and Change, 1980-91. Systems Study Number 5. International Livestock Center for Africa (ILCA), Addis Ababa, Ethiopia. 374 pp.
2. Desta S. & Coppock D.L., 2002, Cattle population dynamics in the southern Ethiopian rangelands, 1980-97. *Journal of Range Management* 55: 439-451.
3. Desta S., Gebru G., Tezerra S. & Coppock D.L., 2005, Linking Pastoralists and exporters in livestock Marketing Chain: Recent Experiences from Ethiopia. Unpublished report, GL-CRSP PARIMA. 18 pp.

# LOCAL POULTRY PRODUCTION SYSTEMS IN NORTHERN KWAZULU-NATAL, SOUTH AFRICA

M. Naidoo\*

Keywords: local poultry production, breeding practices, prophylaxis medicinal plants

## Summary

Local poultry breeds constitute a significant portion of animals kept by rural households for consumption, marketing and socio-cultural uses. Although local breeds constitute an important part of food security for rural households in South Africa, their productivity has not been evaluated. Local chickens (LC) have been kept for decades during which their keepers have gathered and stored a wealth of knowledge on husbandry techniques and management. The purpose of this research was to explore local knowledge of farmers on rural poultry production systems. The research design was qualitative and focused on the farmer's

knowledge in areas of breeding, feeding, disease and general management. Farmers interviewed provided intimate knowledge from their experiences with LC on aspects of feeding, breeding and use of medicinal plants for treatment of diseases. Results revealed the use of a variety of non-conventional feeds and breeding practices. For prophylaxis medicinal plants are used is a norm and nest boxes or temporary shelters are constructed using locally available material. The role of chickens in rural areas goes far beyond providing meat and eggs, as is invariably the case in the commercialized sector. The uses of LC are deeply imbedded in the culture of Zulu people and frequently used for ceremonies related to traditional healing and religious rites. The local poultry breeds, have a potential that needs to be unlocked.

## Résumé

### Systèmes de production locaux de volailles au nord de Kwazulu-Natal, Afrique du Sud

Les élevages locaux de volaille représentent une partie significative des animaux élevés par les familles rurales pour la consommation, la vente et les usages socio-culturels. Malgré le fait que les élevages locaux constituent une importante source de sécurité alimentaire pour les familles rurales en Afrique du Sud, leurs productivités n'ont pas été bien évaluées. Les Volailles locales (LC) ont été élevés pendant plusieurs décades pendant lesquelles leurs propriétaires ont rassemblé et stocké une masse de connaissance sur les techniques d'élevage et de gestion. Le but de cette recherche a été d'explorer les connaissances locales des fermiers dans le domaine des systèmes traditionnels de production de volailles. La méthode de recherche a été qualitative et concentrée sur les connaissances de fermiers dans les domaines de l'élevage, l'alimentation, les maladies et la gestion globale. Les fermiers interviewés ont fourni des connaissances pointues venant de leurs expériences avec les LC dans les domaines de l'alimentation, l'élevage et l'utilisation de plantes médicinales pour le traitement des maladies. Les résultats montrent l'utilisation d'une variété d'aliments non-conventionnels et de pratiques d'élevage. Pour la prophylaxie, l'utilisation des plantes médicinales est une norme et les boîtes à nid ou des abris temporaires sont construits utilisant du matériel disponible localement. Le rôle des volailles dans les zones rurales va plus loin que l'approvisionnement en viande et en œufs, comme c'est invariablement le cas dans les secteurs de commercialisation. L'usage des LC est profondément ancré dans la culture du peuple Zulu et fréquemment utilisé pour les cérémonies relatives aux guérisons traditionnelles et aux rituels religieux. L'élevage local de volailles a un potentiel qui a besoin d'être révélé.

---

## Introduction

It is a common find local chickens (LC) scavenging freely around homesteads in rural areas, and the Uthungulu and Mkhanyakude rural areas in northern

Kwazulu-Natal are no exceptions. Local poultry constitutes a significant portion of animals kept by rural households for consumption, marketing and socio-

---

\*Department of Agriculture, University of Zululand, P Bag X1001, Kwadlangezwa, 3886, KZN, South Africa.

Tel +27 35 9026064. Fax +27 35 9026056

[mnaidoo@pan.uzulu.ac.za](mailto:mnaidoo@pan.uzulu.ac.za)

cultural uses. LC also has the singular advantage of being able to provide households with significant cash income to cope with basic needs. Although LC production constitutes an important part of household food security for rural areas in South Africa, scientists have not evaluated the productivity the production systems used. Research and development in poultry are biased toward breeds produced exclusively for meat and eggs thereby ignoring the multiple functions of dual purpose breeds. This action is eroding valuable indigenous genetic resources which could lead to the disappearance of diversity in the local breeds. The potential of local breeds of poultry have been underestimated by the scientific world because it has been viewed as being inferior and unproductive as compared to exotic breeds yet LC have managed to survive for decades without any intervention. Over the years their keepers have gathered a wealth of knowledge on the upkeep of LC. Similarly, Pretty (7) states that farmers, mainly from developing countries, have increased production by using little or no external inputs. This paper outlines the research findings on poultry production systems in rural areas of northern KwaZuluNatal.

## Research Methodology

In KwaZulu Natal, the rural farming families are estimated to number between 360 000 and 400 000, while the rural population is about 5.3 million which is 62% of the total population of the province (1). A majority of this population are small-scale farmers. This study was carried out in Uthungulu and Mkhanyakude Regional Councils in Northern KwaZulu-Natal in three areas, namely Dukuduku Forest, Kwa Mthethwa and Mpukonyoni. The main aim of this study was to collect and document information from rural farmers on local poultry production systems. The research design was therefore qualitative and research questions which directed the study focused on areas of breeding, feeding, disease and disease control, the uses of LC and the general management. The qualitative approach was used to allow farmers to express themselves in their own words and context with their experiences and knowledge with LC. Thus, the subjective meanings, definitions, symbols and descriptions of specific cases were documented. Data collection involved documenting real events, recording what people said (with words, gestures and tone) and observing special behaviors. Methods used for data collection were field research interviews, observations and key informant interviews. Sampling was not pre-specified, but it evolved once fieldwork began. Consequently the key informant technique was used to collect data for the study and twenty-two informants were selected at random from a larger group of relevant people in the study areas. The individuals

interviewed provided their intimate knowledge as well as ideas and insights from their experiences with LC. A descriptive analysis of the data is presented in the results.

## Results and Discussion

### Production System of Local Chickens

These chickens kept by farmers are called by a wide range of names like Zulu chickens or Nguni chickens and by researchers as local breeds, scavenging chickens, indigenous breeds or village, scratch or backyard chickens. This type of production system is typical of an extensive system where the chickens are left to free-range or scavenge for food, with little or no feed supplementation from the farmer. It is a common sight to find LC at every household or scavenging freely around within the community. The number of chickens kept by each farmer varies from five to fifty with an average of between fifteen and twenty chickens. Similar results have been found in Bangladesh by Bessei (1990) as described in Kitanyi, (4) while results by Kitanyi, (4) found that flock sizes in other parts of Africa comprised of more than 100 birds. The hens take approximately 2 weeks for laying on average 12– 15 eggs with about 3 clutches per year. After 21 days of brooding, 90% hatchability is achieved. Chicks are left with the hen to scavenge for feed, sometimes with a small supplementation of maize rice (crushed maize) from the farmer. With this system the chicks are vulnerable to the weather and predators, the combination causing about 90% loss in the first 3 weeks. The birds reach sexual maturity between 4 – 5 months.

Genotypes are probably regularly interbred since genotypes are not physically separated for breeding purposes. However, certain phenotypes (i.e. the outward expression of genotypes) can easily be distinguished. Examples of such distinct phenotypes include chickens with different plumage colour, frizzle feathers and naked necks. Despite the potential of interbreeding of different genotypes some farmers have managed to breed flocks of all-black or all-white chickens. Common types found are white, black, barred, grey speckled but naked necks are becoming rare. Farmers keep no records of their chickens yet they have the ability to know when one is missing. The chicks are left with the hen after hatching. Although the farmers know that the highest losses occur while chicks scavenge they feel it is important that the chick learns to scavenge for food and also how to protect themselves in times of danger. If farmers separate the chicks then all the feed must be provided and proper hygiene management needs to be applied to avoid the outbreak of disease thereby requiring more labour. This work is mainly done by the women and children as other studies conducted in India reported that work involving livestock is considered the responsibility of women (8).



### Feed resources and feeding strategies

The chickens scavenge the entire day to satisfy its necessary feed requirements. Scavenging mainly consists of eating snails, flying insects like moths and butterflies, locusts, scratching in the soil for small insects and worms in the soil, grass seeds, berries and foliage. In order to save on maize reserves some farmers feed chickens only at midday thereby forcing them to scavenge in the morning while other farmers feed in the afternoon as a precaution against theft and predation in the evening. Maize is widely grown by farmers for home consumption and part of the harvest is used to supplement the chickens scavenging feed base. Other supplements include kitchen scraps which consist mainly of pot scrapings of cooked maize meal (*putu*) and scraps of vegetables. Similar results are discussed by Dessie and Ogle (2) with studies conducted in Ethiopia. Damaged vegetables, wild berries such as Dolofiya (*Opuntia vulgaris*), rotten or damaged fruit from their gardens and fruit skins are deliberately thrown into the yard by the farmer for the chickens to feed on. It is traditional for Zulu households to keep cattle as part of the culture for marital purposes (payment of bride wealth; “ilobolo”) and as a sign of wealth (status). The dung accumulates in the kraal forms a rich medium for earthworms to reproduce. The farmer turns up the kraal manure and allows the chickens in to feed on the earthworms (*amathuku*). Smith (10) encourages the investigation of alternative resources for scavenging chickens. A symbiotic relationship exists where the chickens feed off the ticks and the cows get rid of their ticks. Other sources of supplementation include ants and brewing grains (*Sorghum caffrum*), a common home grown grain used for beer brewing.

### Breeding Strategies

Selection for breeding is mainly done by visual inspection and appraisal of size, body conformation, colour and height of the cockerel. The smaller hens and cockerels are slaughtered to be eaten by the family. Some colours are preferred, e.g. black, white or red. These cockerels and hens are carefully selected from the flock and used for breeding. Sometimes the cockerels selected for breeding are ideal for size, but cannot perform because they are sluggish. The farmer therefore keeps a few younger cockerels to motivate or entice the bigger cockerel to compete. Cockerel exchanges are very common. Farmers exchange cockerels among friends, family or even strangers in the community. This is done in order to increase the gene pool for further selection and to avoid inbreeding. Sometimes the cockerels are borrowed for a specified period, after which it is returned to the original owner. The normal ratio of cocks to hens for breeding is 1:10. Hens and cockerels are not separated during breeding. This is impossible since it would have severe implications for feeding, housing, management, etc.

Some farmers keep their cockerels for an average of 6 months after which they either eat, sell or exchange it. Another form of selection for breeding is done by the visual inspection of the eggs. Smaller eggs are eaten, while the larger ones are left for brooding. Farmers prefer to eat or sell cockerels since they need fewer cockerels for breeding and secondly the hens have the potential to lay eggs, which would increase the flock size while the cockerels in this respect will waste limited feed resources.

### Diseases and Treatments

Local breeds are hardy and well adapted to the harsh environment. They therefore seem to have a strong resistance to diseases with the exception of an outbreak of Newcastle disease, which strikes about once in two years. Mtambo, (5) agrees that local chickens are susceptible to Newcastle disease and remains the number one killer for LC. Most farmers experienced no problems with diseases due to their continued traditional precautions for prevention of diseases. Treatments include Aloe (*Aloe maculata*) leaves chopped and mixed with water to treat respiratory diseases; Icena (*Aloe greeni*) mixed in water to treat infectious coreyza; Mkhuhlu (*Trihilia dregeana*) stamped and mixed in the drinking water to treat Newcastle; Ibozane (*Tetradenia riparia*) leaves are stamped and mixed with aloe to treat respiratory infections; Black vinegar or Aloe and brown sugar boiled together and administered in drinking water for general prevention of diseases. Internal parasites are treated with Epsom salts (Magnesium salts) diluted in water. External parasites like lice and mites or fleas, are treated with wood ash while some farmers use shoe polish to get rid of fleas on the birds.

### Housing

Generally no housing is provided for chickens. This allows them to scavenge over a large area and they return to rest in the trees at night. Nests are provided for the hens that are about to come into lay using old drums placed above the ground on roofs of store places. Dry grass is placed inside for warmth and comfort of the laying hen. Other nest boxes are made from locally available materials using wood to build a structure above the ground to prevent dogs or cats from eating the eggs. The top of the shelter is covered with torn branches for protection against hawks and predators. Some farmers provide simple housing made from locally available material to protect the chickens from predators at night.

### Uses of Local chickens

Chickens are used mainly for own consumption, which allows a varied protein source for their diet. Chickens are sold only out of desperation by the owner e.g. when in need of quick cash for grocery or to pay for school fees and books. Often farmers are

**Table 1**  
**Local chickens (LC) compared to Commercial Chickens (CC)**

<b>Hardy, well adapted</b>	<b>Sensitive to the environment</b>
<b>Few disease outbreaks</b>	<b>Entire flocks lost during disease outbreak</b>
<b>Little or no feed supplementation</b>	<b>Balanced rations must be provided</b>
<b>Low in fat, taste better</b>	<b>Tasteless</b>
<b>Dual purpose breeds</b>	<b>Exclusively meat or egg breeds</b>
<b>No housing provided</b>	<b>Proper housing facility must be provided</b>
<b>Low risk for farmers</b>	<b>High risk</b>
<b>Well integrated into the farming system</b>	<b>No integration</b>

approached by a buyer requesting a special colour of bird for ritual purposes. There exists a strong culture among Zulu people to visit a Sangoma (traditional healer) in times of bad health or for consultation about their life. This often results in the request of LC to perform certain rituals. Red, black, white and grey speckled are common colours used by the Sangomas, Zionists and Prophets. Black chickens are used to get rid of bad luck (can be either a cockerel or hen) while white chickens are used to bring good luck and red chickens are used to talk to the ancestors and to heal the sick. LC is very significant presents during birth, marriage and death ceremonies in Zulu culture.

### **Constraints experienced with Local Chickens**

This production system faces a harsh and unpredictable environment. Hence, the highest losses occur during rearing period from predators such as mongoose, hawks, wild cats and snakes. Domestic dogs and cats contribute to egg losses while birds are nesting. If shelter is provided, then this has feed implications in that all the feed has to be provided and the spread of disease is easier when the chickens are confined and more labour is required for feeding and cleaning.

### **Conclusions and recommendations**

The role of chickens in rural areas goes far beyond providing meat and eggs as is invariably the case in the commercialized sector. They are certainly multi-

purpose and are valued assets embedded in culture and tradition. This production system can therefore be seen as typical of a low input, high return system. The chickens convert spoilt or damaged grains, farm by-products as well as vegetable wastes into valuable sources of protein and income for the household. These chickens also use uncultivated parts of the surrounding land thus transforming wasteland into commodities which provide both food and income. The use of medicinal plants is a cultural tradition and has been built over thousands of years. This knowledge base is now slowly disappearing due to the younger generations moving to urban areas in search of employment. Despite this there is still an enormous demand for medicinal plants for both human and animal health. In South Africa research has been conducted using medicinal plants for human use while not much has been conducted for animal use. LC forms an integral part of the farming system in rural areas thereby allowing farmers to maintain biodiversity and sustainability. Farmer's attitudes towards LC have become more positive since the study. For many years researchers have promoted exotic breeds and convinced them that their own breeds were inferior. Farmers plan to improve their management to increase the productivity of their chickens.

Farmers should be included as an important source of information gathering, experimenting and dissemination of information on poultry. This will assist researchers to develop appropriate technology

### **Literature**

1. Department of Agriculture, 1996, White paper on Agriculture for Kwazulu-Natal. Pietermaritzburg: Department of Agriculture.
2. Dessie T. & Ogle B., 1996, Studies on Village Poultry Production in the Central highlands of Ethiopia.
3. (<http://www.ihh.kvl.dk/htm/php/tune96/7tessier.htm>) (Accessed 01 July 2002).
4. Kitanyi A.J., 1998, Village Production Systems in Rural Africa. FAO Animal Production and Health Paper 142. FAO, Rome.
5. Mtambo M.M.A., 1999, Improving the Health and Production of the Rural Chickens in Africa.
6. (<http://www.ihh.husdyr.kvl.dk/htm/php/tune99/11-Mtambo.htm>) (Accessed 7 July 2001).
7. Pretty J.M., 1995, Regenerating Agriculture: Policies and practice for sustainability and self-reliance. Earthscan Publications, London.
8. Rangnekar A.D., 1993, Studies on the knowledge of rural women regarding local feed resources and feeding systems for livestock.
9. (<http://www.cipav.org.co/lrrd/lrrd6/1/india.htm>) (Accessed, 01 July 2002).
10. Smith A.J., 1990, Poultry. Tropical Agriculturist Series. CTA, Macmillan Publishers, London.

which could lead to the improvement of the present production system. Knowledge and information generated must be shared among extension, students and farmers. Further quantitative on- farm studies can be conducted to investigate and document the effect of existing feed resources on growth rates and the effectiveness of medicinal plants on disease control. These studies will enable researchers to offer appropriate intervention where necessary.

### **Acknowledgement**

The research was financially supported by a study grant under an international collaborative project, Rural Development Information in the Republic of South Africa through Telematics (RDISAT), funded under the Stichting Samenwerkingsverband Instituten van International (SAIL) programme of the Dutch government.

**This special edition of Tropicultura includes papers of presentations made at the international VSF-Europe Symposium “the role of livestock in sustainable local development and poverty reduction”, held in Brussel on April 15<sup>th</sup>, 2005.**

**All full presentation and the symposium file can be downloaded from [www.vsf-belgium/projects/activities](http://www.vsf-belgium/projects/activities) in Europa.**

**The symposium and this special edition of Tropicultura are co-funded by the Belgian Development Cooperation ([www.dgos.be](http://www.dgos.be) – [www.dgcd.be](http://www.dgcd.be)).**

## ORIGINAL ARTICLES

## Session 4

### LIVESTOCK PROGRAMS IN CONFLICT AREAS



Turkana child (Roger Job, 1998).

## INSTITUTIONALIZATION OF PARTICIPATORY DISEASE SURVEILLANCE IN PAKISTAN

J. C. Mariner<sup>1</sup>\*, M. Hussein<sup>2</sup>, M. Afzal<sup>3</sup>, R. H. Raja<sup>4</sup>, Q. Ali<sup>2</sup>, P. Roeder<sup>5</sup> & W. P. Taylor<sup>6</sup>

Keywords: Participatory epidemiology, Disease surveillance, Policy, Pakistan, Rinderpest

### Summary

This paper describes the results of the implementation of a national participatory disease surveillance programme initially implemented as part of the rinderpest eradication programme in Pakistan. Participatory disease surveillance is the application of participatory rural appraisal methods to utilize local veterinary knowledge in disease surveillance. The surveillance programme was found to have benefits beyond rinderpest surveillance. It addressed a broad spectrum of livestock diseases of concern to farmers, enhanced livestock owner and veterinary services communication, and improved the knowledge and skills base available to guide policy reform and drive institutional change.

### Résumé

#### **Institutionnalisation participative de la surveillance des maladies au Pakistan.**

Ce papier décrit les résultats de l'application d'un programme national de surveillance participative des maladies faisant initialement partie du programme d'éradication de la peste bovine au Pakistan. La surveillance participative des maladies est l'application de méthodes d'évaluation de participation rurale pour s'approprier les connaissances vétérinaires locales dans la surveillance des maladies. Le programme de surveillance a montré son intérêt dans la surveillance de la peste bovine. Il concerne un large spectre des maladies intéressant les fermiers,

<sup>1</sup> International Program of Tufts Cummings School of Veterinary Medicine, 200 Westboro Road, North Grafton MA 01536, USA. Telephone: 1-508-887-6762, Fax: 1-508-839-7948, E-mail: jeffreymariner@yahoo.com

<sup>2</sup> National Veterinary Laboratory and Food and Agriculture Organization, Islamabad, Pakistan

<sup>3</sup> Livestock Wing, Ministry of Food, Agriculture and Livestock, Government of Pakistan, Islamabad, Pakistan<sup>4</sup> National Rural Support Program, 46 Aghan Khan Road, F 6/4, Islamabad, Pakistan

<sup>5</sup> Animal Health Service, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, 00100 Rome, Italy

<sup>6</sup> 8 South Terrace, Littlehampton, West Sussex, BN17 5NZ, United Kingdom

améliore la communication entre les éleveurs et les services vétérinaires, et améliore les connaissances et l'habileté nécessaire pour orienter la réforme politique et conduire aux changements institutionnels.

## Introduction

This paper describes the establishment of participatory disease surveillance (PDS) as part of the national rinderpest eradication programme of Pakistan (1). This work was carried out under the guidance of the Global Rinderpest Eradication Programme from 2001 which is still on-going. Participatory disease surveillance evolved from participatory disease searching which is a targeted surveillance method that hunts for disease outbreaks within the context of agent specific disease control programmes. Both participatory disease surveillance and searching are applications of the general field of participatory epidemiology (PE): the use of participatory rural appraisal (PRA) techniques to collect epidemiological intelligence (2).

At the beginning of the project, Pakistan was considered to be the last known rinderpest infected country in Asia due to three enigmatic outbreaks of rinderpest detected in dairy farms adjacent to the city of Karachi in Pakistan in 2000 (3). Participatory disease searching was introduced in 2001 as a time-bound activity with the principle objective of understanding the epidemiological context of these outbreaks (1). The project design identified three target diseases for the PDS programme: rinderpest (RP), foot-and-mouth disease (FMD) and peste des petits ruminants (PPR). In Pakistan, participatory disease searching was further developed into a more general participatory disease surveillance system that both addressed farmer's priorities and collected the required data for the rinderpest eradication programme.

This paper begins by summarizing the implementation and results of PDS activities in Pakistan. More importantly, the paper identifies the lessons learnt from the process and observations of the Pakistani programme participants regarding the future role of PDS and PE activities in Pakistan. It is an important example of how true participatory programmes in government can lead to improved staff morale, greater vision and policies that better reflect the needs of farmers.

## Materials and methods

### *Participatory Disease Searching and Surveillance:*

Participatory disease searching is a tool for targeted disease control programmes. The participatory disease searching technique was developed in East Africa as a targeted application of PE methods to surveillance for rinderpest eradication. The method was found to be highly successful in identifying the last foci of rinderpest in East Africa (4) and contributed

to the eradication of rinderpest in Ethiopia, Sudan and Uganda. Subsequently, the technique was found to be useful in providing clinical information to validate the eradication of rinderpest. It relies on the techniques of participatory rural appraisal to understand the epidemiological determinants and the social context of disease maintenance. Although PDS programmes are targeted to a specific disease, data collection is conducted through a broad, un-biased framework of open-ended inquiry.

The principal tool utilized is semi-structured interviews (Figure 1) where respondents are asked to identify the principal animal health problems they encounter or have encountered in the past. The interviewers do not directly introduce the target disease as a topic for discussion. If the respondents mention the target disease as a present or past problem, then the subject is probed in detail. Participatory tools such as proportional piling, matrix scoring (Figure 2), seasonal calendars and mapping are used to understand the priorities of farmers and to go more deeply into the epidemiology of specific diseases (2).

At the outset of implementation in Pakistan, it was recognized that the three target diseases selected did not necessarily correspond to the principal priorities for livestock owners. In order to preserve the participatory nature of disease searching, the specific objectives of the programme were set as the following:

- Identify and prioritize disease with important livelihoods impact in Pakistan from the livestock owner's perspective,
- Capture and record present and historical reports of RP, FMD and PPR
- Establish an effective surveillance reporting system and a clinical surveillance database to support the accreditation of rinderpest eradication as part of the pathway to formal recognition of disease freedom by the Office International des Epizooties (OIE).

### **PDS Implementation:**

A total of 17 PDS teams were formed in the seven provincial and federally administered areas of Pakistan. Personnel were paid field allowances commensurate with costs. Initial sampling targets were expanded to reach over 10% of the villages nationally over the course of implementation. The semi-structured interview checklist began with open-ended questions regarding the principal livestock agricultural activities practiced and the principal disease problems encountered. Thereafter, two proportional piling exercises were conducted on the relative frequency



**Figure 1:** In semi-structured interviews, a checklist of topics for exploration is used rather than a questionnaire. This gives participants some control over the content of the interview and encourages them to express their ideas within the context of their knowledge system.



**Figure 2:** In the first step of impact matrix scoring, the participants are asked to identify and score the livelihood benefits that they derive from livestock. In the second step, the impact of major disease on each benefit is assessed by asking the participants to divide the benefit score according to the relative negative impact that each disease has on the benefit. In the photo, the facilitator is sitting on the ground guiding the respondents through the exercise.

and relative impact on livelihoods of the principal disease problems. Any mentions of RP, FMD and PPR were then probed in detail to establish the history and present status of these diseases in the community. Information on current outbreaks was pursued exhaustively with the objective of identifying clinical cases for laboratory investigation. In a subset of communities, the general checklist was supplemented with mapping, seasonal calendars, and impact matrix scoring. The checklist was designed to be completed within one hour and allowed time to explore any issue raised by livestock owners.

#### **Training Programme:**

The role of the trainer in participatory approaches was to establish conditions that allowed the participants to learn from experience. Generally, concepts were introduced through brief presentations that outlined topics. However, the real learning took place through classroom and field practice of participatory rural appraisal skills. Often, participants raised objections to this type of qualitative methodology and questioned the reliability of traditional knowledge. These objections were addressed by allowing participants to learn from the structured field experiences that made up more than 60% of every workshop.

The training programme consisted of four essential types of training exercises:

- Training in PDS
- Training of trainers in PE and PDS
- Decision-makers workshops
- Inter-provincial reviews of PDS performance

The basic training in PDS was conducted as a three stage process. First, the trainees went through a ten day introductory workshop. Thereafter, they immediately completed field assignments of two-month duration where they acquired experience. The final step was a brief refresher workshop where participants presented their results and discussed lessons learnt. In the introductory workshop concepts and techniques were presented and practiced in role plays in the classroom over a four day period. The next five days were spent practising activities in the field with afternoon discussion sessions to bring out key lessons for the day. The last day of the training was used to produce work plans for the field assignment. The PDS trainees left the workshop with detailed work plans and began work while the experiences were still fresh in their minds. An important part of the organization of the programme was to assure that the resources to carry-out the field work were available before beginning the training programme. At completion of the final refresher workshop, participants were evaluated and awarded the title of PDS expert.

Training of trainers was completed in a two step process and only experienced PDS practitioners were eligible to attend. First, a five-day workshop that introduced participatory training skills and then guided the participants to develop workshop programmes

and training sessions was completed. Subsequently, the trainers conducted a basic training course for new trainees. The trainer of trainers was present during the basic training course to coach the trainers behind the scenes.

Once the PDS programme was well established in the field, the need to train decision-makers and data analyst became apparent to the participants. This was to ensure that senior policy makers understood the value of the programme and could appropriately utilize the data in policy formulation. The two decision-makers courses were conducted over five-days and brought together an equal number of PDS experts and decision-makers. Two days of the course were spent in the field with decision-makers conducting PDS interviews with the support of PDS experts with two-year field experience. On the last day of the course, the decision-makers evaluated the PDS programme and formulate recommendations on the appropriate use of PDS and participatory activities by the federal and provincial livestock departments.

#### **Results**

At the completion of the basic training programme, it was evident that the PDS experts had re-evaluated their attitudes towards livestock owners' information and acquired a new respect for traditional knowledge. It was noted by all stakeholders consulted that the trust, respect and communication between the livestock department and communities was enhanced as a result of the PDS activities. As of May, 2005 over 10% of the villages of Pakistan have participated in PDS exercises. Key technical results were:

- Farmers clearly retained a memory of rinderpest occurring up to the end of 2000 after which time none reported having seen the disease, thus, the pattern of rinderpest reports received was consistent with the recognised history of the disease yet considerably more sensitive. No current outbreak reports were received.
- After rinderpest ceased to be a problem, haemorrhagic septicaemia (HS) was identified nationally as the most important disease constraint faced by livestock owners due to the acute impact of sudden mortality losses on small farmer's livelihoods.
- Foot-and-mouth disease and mastitis were ranked in the top five diseases of concern due to the production effects of these diseases, principally on dairy production.
- A national overview of Peste des petits ruminants was prepared and PPR was identified to be widespread in Pakistan. The PDS programme led to the first identifications of the disease in Azad Jammu and Kashmir (AJK), where it was called *mohn pukka*, *bhook*, *sheendli* or by no name, and the North West Frontier Provinces

(NWFP) (*tadian*). Livestock owner reports of PPR (*boosat* and *bojaro*) were documented in almost all districts of Sindh province. In AJK, NWFP and Sindh selected outbreaks were sampled and confirmed by laboratory methods.

- Whilst originally conceived as a means of gathering information from farmers, the farmers viewed the exercise as a means of gaining information for themselves and it became an extension exercise. Indeed the advice requested of the educated women professionals in single gender, women's group meetings, extended far beyond animal husbandry issues into women's health issues, for example, indicative of the power of this technique for enhancing community dialogue where no other means exists.

One significant result of PDS was that decision-makers obtained a comprehensive overview of livestock owner priorities and perceptions regarding the clinical disease status of the country. This provided the confidence needed for the Federal Animal Husbandry Commissioner to declare provisional freedom from rinderpest to the Office International des Epizooties in January of 2003.

The decision-makers workshops were highly effective in that decision-makers actually had the opportunity to practice participatory rural appraisal techniques and by their own experience the opportunity to learn the appropriate value and use of the techniques. They made the following condensed recommendations:

- Participatory disease surveillance is a highly effective surveillance method whose benefits extend beyond rinderpest eradication.
- Participatory disease surveillance should be institutionalized within the livestock department of Pakistan as a sustainable approach to clinical disease reporting. This includes the allocation of regular recurrent budget, the creation of posts and the formulation of reporting pathways. The technical objectives of the programme should be periodically updated to reflect the current needs and priorities of stakeholders.
- Participatory approaches offer advantages for activities of the livestock department beyond disease surveillance and should be incorporated in regular programmes. The knowledge, experience and training skills of the PDS experts and trainers are a resource that should be utilized to extend participation into other areas.
- Participatory disease surveillance and participatory epidemiology provides essential information on disease impact that should be used in policy formulation. Participatory epidemiological studies on issues such as service delivery, vaccination policy and disease specific policies should be integrated into policy analysis activities.

## Discussion

Classical surveillance systems are based on a linear combination of techniques that include passive disease reporting systems and outbreak investigation leading to laboratory confirmation. Veterinarians are largely dependent on livestock owners to come forward with disease reports or requests for assistance. Breaks in the information chain occur at several levels and very few outbreaks are finally diagnosed at the laboratory level in developing countries. The result is that the classical systems are insensitive and the information finally available is sufficiently sporadic to be misleading rather than informative. Participatory disease searching overcomes this lack of sensitivity by reaching out to farmers to tap into their local knowledge of clinical disease through the use of neutral open-ended inquiry. Both farmers and involved staff find the experience rewarding and this is important to sustain surveillance. When PDS is incorporated into a comprehensive surveillance, the overall sensitivity of the system is enhanced. At the outset of the PDS activity, PPR was known to be present in Pakistan (5, 6), but the extent of infection and importance of the disease to livestock owners was not apparent.

Epidemiological information provides the basis for animal health policy. Policy determines how resources are used to serve farmers. Conventional approaches to epidemiological surveillance and animal health policy formulation are strongly expert-oriented. Experts set the priorities for surveillance systems and establish the indicators of impact based on expert knowledge. Usually, priorities are set from an economic or trade perspective. Frequently, these priorities and indicators are based on an inadequate understanding of the range of farmer's livelihood strategies and the relative importance of the range of benefits farmers obtain from livestock keeping. The result is that data is biased towards a narrow range of producers and policies do not respond to needs of the majority of farmers.

Perhaps the best example of the impact of PDS on policy is the new appreciation that Pakistani authorities have for the importance of HS in the livelihoods of farmers. It is sometimes stated that traditional farmers do not fully appreciate the impact of production loss and over-emphasize mortality. The results indicate that farmers do recognize and value production losses. However, they also evaluate risk at the farm level. Sudden catastrophic losses due to HS put households in crisis and this risk must be addressed in concert with any programme that addresses production diseases. However, HS was not the only surprise because a disease known to farmers as *rat mootra* and many veterinarians as 'post-parturient haematuria' was flagged in a significant proportion of interviews as being of major importance to farmers. Its aetiology is currently unknown although it could relate



to a phosphate deficiency syndrome described in the past in South Asia. Clearly it needs to be both studied and to be brought into disease control programmes. Although the veterinary services of Pakistan were found to be receptive to experimenting with new approaches, there were important challenges to overcome in the implementation of PDS in Pakistan. These challenges were different from those encountered in Africa. Pakistani society places high value on education, social status and seniority. In the past, the veterinary services of Pakistan tended not to approach farmers for information and heavily discounted information provided by traditional farmers. For example, initial questions in participatory training course raised objections such as *"Why are we asking ignorant farmers questions? They expect us to tell them things"*. As a result of this bias very little information flowed up the chain of command in the veterinary services. Thus, the principle initial challenges were institutional attitudes towards information and farmer's knowledge. Beyond the technical accomplishments of the PDS programme, it was generally recognized that the personnel involved in the programme experienced major attitudinal shifts, and developed improved morale and new more effective working styles. Thus,

the programme became a major tool in effecting organizational change which is sustained could lead to federal and provincial livestock departments that are more responsive to their client's priorities.

## Conclusion

Although introduced as a time-bound project activity, PDS was found to be a highly flexible and effective surveillance method that had far reaching institutional impact in Pakistan. Not only is the approach low-cost and sustainable, it motivated staff. The experience in Pakistan indicated that PDS can be an important vehicle for driving institutional change through effects on communication style, attitudes and the information base available for policy reform.

## Acknowledgement

This work was undertaken with the Government of Pakistan as part of a European Union funded project implemented by the Food and Agriculture Organization of the United Nations (GCP/PAK/088/ EC Support for Emergency Prevention and Control of Transboundary Animal Diseases in Pakistan).

---

## Literature

1. Mariner J.C., Hussein M., Roeder P.L., & Catley A., 2003, The use of participatory disease searching as a form of active disease searching in Pakistan for rinderpest and more, Proceedings of the 10<sup>th</sup> International Symposium on Veterinary Epidemiology and Economics, November 2003, Viña del Mar, Chile.
  2. Mariner J.C. & Paskin R., 2000, Manual on Participatory Epidemiology, Food and Agriculture Organisation, Rome, 81 pp.
  3. Hussain M., Iqbal M., Taylor W.P. & Roeder P.L., 2001, Pen-side test for the diagnosis of rinderpest in Pakistan, Vet. Rec. 149, 300-302.
  4. Mariner J.C. & Roeder P.L., 2003, Use of participatory epidemiology in studies of the persistence of lineage 2 rinderpest virus in East Africa, Vet. Rec. 152, 641-647.
  5. Hussain M., Afzal M., Muneer R., Ashfaq M. & Haq E.U., 1998, An outbreak of peste des petits ruminants in goats in Rawalpindi, Pakistan Veterinary Journal 18, 224-226.
  6. Qurban A., 2003, National Policy for Control of Peste des Petits Ruminants (PPR) in Pakistan, Islamabad, UN Food and Agriculture Agency, 38 pp.
-

# VÉTÉRINAIRES SANS FRONTIÈRES (VSF) PROJECTS IN SAHRAWI REFUGEE CAMPS: LIVESTOCK MANAGEMENT AND VETERINARY SERVICE BETWEEN EMERGENCY AND DEVELOPMENT.

A. Broglia \*<sup>1</sup>, A. E. Abdullah<sup>2</sup> & S. Di Lello<sup>1</sup>

Keywords: Sahrawi, Refugee camp, Veterinary service

## Summary

The Sahrawi people lived in Western Sahara till the Moroccan invasion in 1975. Then the Sahrawi began their exile to Algeria as refugees. Since then, approximately 150.000 Sahrawi people have been living in 4 refugee camps, in a 10.000 square Km area nearby Tindouf (South West Algeria). After an initial situation of acute emergency, the refugee camps have developed afterwards a stable political and social structure, but depending always from humanitarian aid. This situation could be now called "chronic emergency". The inhabitants in the camps, originally pastoralists, still have lots of animals (sheep, goats, camels, donkeys), that are their unique source of fresh food and noble protein. Now the Sahrawi breeders have to face new problems of animal health, linked to the sedentary conditions in the camps (lack of pasture, presence of rubbish, hygiene of animal shelters, change of husbandry, etc.). The biggest problem in animal husbandry is due to the no grazing condition in the camps. Moreover the animals coming from the pasture in the outer desert suffer a strong nutritional stress. In this context the VSF projects have been concerned as creation and support to the local veterinary service, by providing technical assistance, formation, and monitoring the routinary activities of the vets and paravets (meat inspection, clinical examination, laboratory diagnostics, etc.). The veterinary service would pursue animal health control, and above all, promote a correct animal management in the refugee camp context. The next step in livestock condition improvement in the Sahrawi camps will be a project of forage integration, foreseen in 2005.

## Résumé

**Les projets de Vétérinaires sans Frontières (VSF) dans les camps de réfugiés de Sahrawi: gestion d'élevage et service vétérinaire entre urgence et développement.**

La population de Sahrawi a habité à l'ouest du Sahara jusqu'à l'invasion marocaine en 1975. Ensuite, les Sahrawi ont commencé leur exil en Algérie comme réfugiés. Depuis lors, approximativement 150.000 personnes Sahrawi sont allées habiter dans 4 camps de réfugiés, sur une surface de 10.000 km<sup>2</sup> tout près de Tindouf (Sud-est de l'Algérie). Après une situation initial d'urgence aiguë, les camps des réfugiés ont développé par la suite une structure sociale et politique stable, mais dépendant toujours de l'aide humanitaire. Cette situation peut être appelée maintenant «urgence chronique». Les habitants des camps, pasteurs à l'origine, ont encore beaucoup d'animaux (des moutons, des chèvres, des chameaux, des ânes), qui sont leur unique source d'aliment frais et de protéine noble. Maintenant, les éleveurs Sahrawi doivent faire face à de nouveaux problèmes de santé animale, liés aux conditions de sédentarité dans les camps (manque de pâturage, présence d'ordures, hygiène des abris d'animaux, modification de gestion, etc.). Le plus grand problème dans la gestion des animaux est dû à l'absence de pâturage dans les camps. De plus, les animaux venant des pâturages vers le désert souffrent d'un stress nutritionnel intense. Dans ce contexte, les projets de VSF ont été orientés vers la création et le support aux services vétérinaires locaux, en fournissant de l'assistance technique, de la formation et en surveillant les activités de routine des vétérinaires et para-vétérinaires (inspection de viande, examen clinique, diagnostics de laboratoire, etc.). Les services vétérinaires devraient poursuivre le contrôle de la santé animale, et surtout, promouvoir une gestion correcte des animaux dans ce contexte des camps des réfugiés. La prochaine étape dans l'amélioration des conditions d'élevage dans les camps des Sahrawi sera un projet d'intégration des pâturages, prévu pendant l'année 2005.

<sup>1</sup>Corresponding author: NgO Africa70, v.le Tunisia 37, 20124 Milan (Italy).  
Tel: +39-02-29015084, fax: +39-02-6551199. Email: alessandro.broglia@africa70.org

<sup>2</sup> Sahrawi Veterinary Department, Public Health Ministry, Sahrawi Arab Democratic Republic.

## Introduction

### Historical context of Western Sahara

Situated along the Atlantic coast of north-west Africa between Morocco, Mauritania and Algeria, Western Sahara was a Spanish colony for over one century. In the early 1970s the Sahrawi began to organise against Spanish colonialism and formed the “Frente Popular Para la Liberacion de la Segua el Hamra y el Rio Oro”(POLISARIO).

In 1975 the POLISARIO was on the verge of gaining independence from Spain. Then, Spain signed a deal with Morocco and Mauritania, the territory of Western Sahara was split between Morocco and Mauritania. This annexation of Western Sahara in 1975 was the start of the war against Morocco and Mauritania. Thousands of Sahrawi fled their homes in Western Sahara and turned east, to Algeria. There, they were granted asylum and began to build refugee camps in an area of the desert considered uninhabitable (*hammada* desert). The Polisario Front proclaimed in February 1976 the SADR, the Sahrawi Arab Democratic Republic. After 18 years of war the United Nations Peace Plan for Western Sahara was adopted in 1991 by the Security Council. The United Nations mission for the referendum in Western Sahara, MINURSO (*Misión de las Naciones Unidas para el Referendum del Sahara Occidental*), has been monitoring a cease-fire since 1991 and preparing the self determination referendum that still has not been performed (5).

**At the present time Western Sahara is divided in two parts by a Moroccan wall. The Western part till the coast is controlled by Morocco, whereas the Eastern parts, the so called “freed territory” till the Mauritanian border, are patrolled by the Sahrawi army.**

### Refugee camp structure

The Sahrawi refugee camps are approximately 30 km far away from the western Algerian town of Tindouf. In these camps, over a 10.000 squared km area, approximately 155.000 people, 80% women and children, live in tents and sand-brick shelters.

The camps are divided into four large wilayas (provinces). They were built based on access to natural water sources and access to paved roadways (5).

Their overall health status has improved since the early years of malnutrition and chronic illness, thanks also to the support of many international organisations.

The Sahrawi are traditionally nomadic pastoralists and still have lots of animals, the only source of fresh food of animal origin. About 5300 breeders, mostly women, own 30.000 sheep and goats, 300 camels, 50 donkeys. There are also small amounts of chickens, hens and rabbits. Moreover, in the freed territories in the eastern side of Western Sahara, there are many transhumant camel herds belonging to the SADR and to private breeders (2,3).



Figure 1: Landscape over a Sahrawi refugee camp.

Animal health control is a task of the Sahrawi Veterinary Department (SVD), which is part of the Sahrawi Public Health Ministry. The SVD personal includes 4 veterinarians, 12 technicians, 135 women in charge for the basic animal health at local level (2, 3).

### VSF projects in the Sahrawi camps

VSF projects in Sahrawi refugee camps started in 1999, promoted by SIVtro VSF Italy and the Italian NgO Africa70. After a first two-year project during which the Sahrawi Veterinary Department (SVD) was constituted, the actual project "*Salud animal en las tiendopolis Sahrawi*" is going on, till April 2006. Till now SIVtro-VSF Italy projects are the only interventions related to animal health and veterinary capacity building in the Sahrawi refugee camps (2).

The general aim of the projects consists in increasing the quality of life of the refugees, through improving livestock health status. To achieve that, the project is focused on the capacity building of the Sahrawi Veterinary Department.

Working on implementing a public structure such as the Veterinary Service, the VSF actions in the Sahrawi camps could be actually considered as a development project, foreseeing a hopeful return of Sahrawi refugees to their own land, where to build up a political and social structure. Nevertheless the same project encloses a strong component of emergency, due to the immediate need of fresh food that can only come from the livestock. In this context SIVtro-VSF Italy and Africa70 NgO have to manage the intervention, considering both development and emergency needs of the refugees.

### The intervention is articulated in two levels:

1. Institutional support to the Sahrawi Veterinary Department (SVD), Public Health Ministry, Sahrawi Arabian Democratic Republic - SADR);
2. Valorisation of the livestock holding.

The first level of intervention considers the technical assistance for SVD, the on-the-job formation of the staff, the support to SVD in routinary activities (epidemiological monitoring, meat inspection, clinical examination, laboratory diagnostics, etc.). A database about the health condition of the Sahrawi livestock and about the Sahrawi traditional medicine knowledge has been created (2).

Moreover a legislative frame and technical rules about animal health control, food hygiene and animal trade has been elaborated by the SVD personal and is going to be approved by the SADR Parliament.

According to the second level of intervention (valorisation of the livestock holding), the activity

is concerned as support to the Sahrawi breeders. Due to lack of vegetation, the ruminants suffer all of malnutrition, intoxication, metabolic disorders. In the camps the animal daily feeding consists in remains of human food (legumes, rice, and powder milk) or rubbish and paper as the unique source of cellulose. The total lack of digestible fibre leads to severe gastrointestinal disorders. On this extremely poor body condition, external parasitic diseases (mange, ticks, lice) causes huge losses and decrease enormously fertility and weaning rates. Such a settled condition and the complete absence of forage is actually foreign to the Sahrawi breeders, who are pastoralists and used to move along routes in the desert looking for pasture. Therefore the VSF support firstly consists in information exchange and formation to the breeders, by trying to find out the most suitable breeding techniques to avoid or limit production losses in this difficult context. Improvement in weaning techniques, correct animal shelter management and hygiene, vaccination against enterotoxemia and parasitic disease reduction could drastically improve the health and body condition of livestock (2). As middle term actions, VSF is starting new projects to cultivate forage plots and bring forage from the Algerian market in order to integrate the animal diet with digestible fibre.

Besides the improvement in processing animal products and trading opportunities for the breeders have to be still stimulated. One of the main difficulties is the lack of a market, due to the isolated geographical position of the camps, to its social organisation, and, above all, to the political priorities that privilege the emergency.

### Risk factors

The VSF actions in the Sahrawi refugee camps are anyway conditioned by the following risk factors:

- Unstable political situation in the refugee camps;
- Lack of motivation by the local staff in working in a foreigner land;
- Extreme climatic conditions: high temperature in the summer (over 50°C), total absence of vegetation, frequent sand storms;
- Logistic difficulties related to the lack of socio-economic infrastructure, prevented access to the town of Tindouf for the expatriated personnel;

### Results

The main results of the SVD field activity are resumed in the Table 1 and Table 2 (1).

### Conclusion and future possible interventions

**Many possible activities, ideas and intervention proposals may be achieved in the Sahrawi refugee**

**Table 1**  
**Field activity of the SVD in 2004**

<b>FIELD ACTIVITY 2004</b>	<b>TOTAL</b>	<b>LABORATORY ANALYSIS 2004</b>	<b>TOTAL</b>
Meat inspections	1303	RBT test (brucellosis)	550
Slaughtering house inspections	47	Microbiology	30
Service consulting in the “dairas”	216	Coprological examinations	13
Small ruminants clinical examinations	910	Skin scrapings	5
Camel clinical examination	176		
Dog control (vaccination, deworming)	99		
Entero-toxemia vaccination	277		
Pox vaccination	1161		

**Table 2**  
**Further laboratory analysis of infectious diseases (Istituto Zooprofilattico Sperimentale delle Venezie)**

<b>ANALISIS</b>	<b>TEST</b>	<b>N</b>	<b>PREVALENCE</b>
Brucellosis	CF	61	-
Blue tongue	ELISA	633	48%
Insect trapping	UV trap	5884	0,3% ( <i>Culicoides similis</i> )
Leucosis	ELISA	4	-
Caprine arthritis-encephalitis	ELISA	16	-
Clamydiosis	CF	663	-
Contagious agalaxia	ELISA	16	-
Q fever	CF	455	2,7%
Milk nutrient analysis	IF	7	
Tick identification	Microscopy	4	<i>Hyalomma dromedarii</i>

- Further studies, information exchange and application in the field of Sahrawi ethnoveterinary knowledge;
- Support the creation of a forage market
- Experimental forage plot (activity already in progress).
- Increasing collaboration with Algerian veterinary service, with Universities and other research and development institutions in order to build up a network of knowledge about Sahrawi livestock condition.

In conclusion it must be remarked that the spirit of VSF interventions in the Sahrawi refugee camps consists basically in upgrading the capacity of the human resources, namely the local staff of the SVD, with the hope that such a structure will be of fundamental utility also in the independent Western Sahara.

### **Acknowledgements**

The VSF projects in the Sahrawi refugee camps are supported by European Union - Europe Aid – Co-operation Office (AIDCO), and Italian Co-operation (Foreign Affair Ministry, Italian Government). We thank all vets and technicians of Sahrawi Veterinary Department (Public Health Ministry, SADR), and the Italian staff of SIVtro VSF Italy and NgO Africa70. We are grateful also to the Istituto Zooprofilattico

### **camps regarding livestock condition improvement. Among them:**

- Increase presence of the SVD in the freed territories where most of the camel herds are;
- Prevent disease entry in the camps from the south (Mauritania) and East (Algeria) through centres of quarantine (activity already in progress);



**Figure 2: Meeting of VSF exps, Sahrawi vets and Sahrawi breeders about a case of sarcoptic mange in a young camel.**



**Figure 3: Interviews with Sahrawi women about ethnomedicine knowledge (6).**

Sperimentale delle Venezie and to the Veterinary Faculty of University of Padova for the laboratory analysis.

*This paper does not represent the official position of the European Commission and does not commit the European Commission in any way.*

## Literature

1. Baldan M., 2004, Indagine sulla Blue tongue nelle tendopoli Sahrawi (Algeria), Tesi di laurea, Università di Padova.
2. Broglia A., 2004, Informe de ejecucion del primer año de actividad del proyecto. NgO Africa70.
3. Cassini R., 2004, Evaluación externa intermedia relativa al primer año y medio de Proyecto. NgO Africa70.
4. Corró M., 2003, Relación técnica para uso interno del experto de laboratorio. NgO Africa70.
5. Di Lello S., 2002, Relazione Finale del Progetto di sanità animale nelle tendopoli Sahrawi. NgO Africa70.
6. Di Lello S. & Larosi S., 2004, Informe de evaluacion interna intermedia relativa al primer año de Proyecto. NgO Africa70.
7. Sciattella T., 2003, Primera relación de evaluación del Proyecto "Salud animal en la tendopoli Saharawi". NgO Africa70.
8. Volpato G., 2003, Informe de la primera misión de estudio de la medicina tradicional Saharawi. NgO Africa70.

### WEB SITES OF INTEREST:

9. <http://www.sahrawi.it/>
10. <http://www.wsahara.net>
11. <http://www.womenwarpeace.org>

# FACILITATING ANIMAL HEALTH SERVICE DELIVERY IN A CHRONIC CONFLICT SITUATION; HOW RINDERPEST IS BEING ELIMINATED FROM SOUTHERN SUDAN

B.A. Jones <sup>\*1</sup>, S.P. Letereuwa, A.A. Araba & K.M. Nimaya<sup>1</sup>

**Keywords:** Rinderpest, Sudan, Community-based animal health, Participatory Epidemiology, Surveillance, Conflict

## Summary

From 1993 a community-based animal health programme was established in southern Sudan by relief agencies in cooperation with local counterparts with the objective of controlling rinderpest and other major livestock diseases. Community-based animal health workers (CAHWs) carried out rinderpest vaccination using heat-stable vaccine and the number of rinderpest outbreaks reduced from 12 in 1993 to the last confirmed outbreak in 1998. In 2001 a strategy for the eradication of rinderpest from Sudan was developed by the Pan African Programme for the Control of Epizootics of the African Union Inter-African Bureau for Animal Resources in consultation with the Government of Sudan. VSF Belgium (VSFB) was contracted to manage a project to implement the strategy in the Sudan People's Liberation Movement-administered areas of southern Sudan. VSFB's approach was to strengthen the network of animal health workers, integrate rinderpest activities into the existing system, provide training for all levels of stakeholder, raise awareness in communities, and adapt conventional surveillance methods for use by animal health workers under veterinary supervision. The project has succeeded in maintaining rinderpest outbreak emergency preparedness and carrying out the active and passive surveillance required for verification of freedom from rinderpest diseases.

VSF Belgium Rinderpest Project, PO Box 13986, 00800 Westlands, Nairobi, Kenya. Tel: +254 20 2734518 Fax: +254 20 2734533 E mail: [bjones@vsfb.or.ke](mailto:bjones@vsfb.or.ke), [vsfb@vsfb.or.ke](mailto:vsfb@vsfb.or.ke)

## Résumé

**Facilitation du service de santé animale dans une situation de conflit chronique; comment la peste bovine est en voie d'éradication au sud du Soudan**

Depuis 1993 un programme de santé animale de proximité a été établi au sud du Soudan par des agences de soutien en coopération avec des homologues locaux dans le but de contrôler la peste bovine et d'autres maladies majeures du bétail. Les techniciens vétérinaires (CAHWs) ont réalisé des vaccinations contre la peste bovine en utilisant un vaccin thermostable et le nombre d'épidémies de peste bovine est passé de 12 au début 1993 au dernier cas confirmé en 1998. En 2001, une stratégie pour l'éradication de cette maladie au Soudan a été développée par le programme Pan-Africain de Contrôle des Epizooties du Bureau Africain de l'Union Inter-Africaine pour les ressources animales en accord avec le Gouvernement du Soudan. VSF Belgium (VSFB) a été choisi pour gérer un projet de développement de la stratégie dans les régions administratives du Mouvement de Libération de la Population du Soudan. L'approche de VSFB fut de renforcer le réseau de la santé animale de proximité, d'intégrer les activités en rapport avec la peste bovine dans le système existant, fournissant des formations à tous les niveaux d'intervention, en augmentant la prise de conscience des communautés et en adaptant des méthodes de surveillance conventionnelle adaptées aux techniciens vétérinaires. Le projet a réussi en maintenant la pression d'action d'urgence vis-à-vis des épidémies et en assurant la surveillance active et passive requise pour vérifier l'absence de cas de peste bovine.

## Introduction

The southern region of Sudan is populated by approximately 8 million people from many different tribes of which a large proportion are pastoralists or agro-pastoralists who keep approximately 10 million cattle, 20 million sheep and goats as well as a large number of chickens. Southern Sudan has experienced almost continuous civil war since Sudan

gained independence in 1956 until the signing of the Comprehensive Peace Agreement in January 2005. The prolonged conflict has destroyed infrastructure, trade, social services and prevented economic development. Animal health services previously provided by the government were disrupted, resulting in an upsurge of livestock diseases. In particular during

<sup>\*1</sup>Corresponding author:

the 1980s and early 1990s there were widespread outbreaks of rinderpest, a highly contagious cattle disease that causes high mortality and morbidity, threatening livelihoods and food security.

In 1989, Operation Lifeline Sudan, a consortium of United Nations agencies and non-governmental organizations (NGOs), started to provide emergency relief to the war-affected population. From 1993, a community-based animal health programme was implemented (3), led by UNICEF and a number of international and indigenous NGOs, working in co-operation with local counterparts. Based on participatory baseline surveys, the main objective of the programme was to control the most serious livestock diseases. The highest priority of the livestock keepers was initially to control rinderpest, but quickly the programme broadened to address other disease priorities. Community-based animal health workers (CAHWs) were trained for 10-14 days in disease diagnosis, treatment and vaccination (8). They were supported to carry out rinderpest vaccination using heat-stable vaccine that could be carried at ambient temperatures for up to 30 days. Animal Health Auxiliaries (AHAs) were trained for 4-9 months to provide support and supervision for the CAHWs. From 1993 to 2000 an average of 969,922 cattle were vaccinated against rinderpest each year. The number and magnitude of rinderpest outbreaks reduced greatly: the last confirmed outbreak of rinderpest was in 1998 (2).

As part of the global effort to eradicate rinderpest led by FAO in 2001 a strategy for the eradication of rinderpest from Sudan was developed by the Pan African Programme for the Control of Epizootics (PACE) of the African Union (AU) – Inter-African Bureau for Animal Resources (IBAR) in consultation with the Government of Sudan Federal Ministry of Animal Resources and Fisheries (FMOAR&F). All rinderpest vaccination would stop by June 2002 and a five-year period of surveillance would be carried out. The first

three years would focus on reporting and investigation of suspected rinderpest outbreaks, active surveillance and rinderpest emergency preparedness. In the final two years these activities would continue as well as sero-surveillance.

VSF Belgium (VSFB) was contracted to manage a three and a half year project (November 2001 to April 2005) to co-ordinate and implement the strategy in the Sudan People's Liberation Movement (SPLM)-administered areas of southern Sudan, whilst the FMOAR&F was implementing a parallel project, PACE Sudan, in the government-administered areas.

## Materials and methods

VSFB's approach was to integrate rinderpest eradication activities into the existing animal health service delivery system by collaborating with the other livestock agencies working in southern Sudan and strengthening the existing network of animal health workers - approximately 1500 CAHWs supported by 200 AHAs and 40 NGO and FAO veterinarians and livestock officers. The key roles that could be played by livestock keepers, CAHWs, AHAs and field veterinarians were identified and training was provided to enable them to fulfill their roles. The conventional surveillance methods for rinderpest were adapted for use by CAHWs and AHAs under veterinary supervision in pastoralist communities (5). Culturally appropriate communication methods were developed to raise community awareness, including songs, stories, and posters (4). Animal health workers were paid for each surveillance exercise carried out, and a reward was offered for the detection of a confirmed rinderpest case.

## Reporting and investigation of suspected rinderpest outbreaks

Reports of rinderpest-like disease were sent by animal health workers to the veterinary laboratory in



Figure 1: AHAs and CAHWs during an investigation of an outbreak of rinderpest-like disease, Western Upper Nile.





**Figure 2: Community meeting to raise awareness of rinderpest eradication activities, Marial Lou, Tonj County.**

Lokichokio on the Kenya-Sudan border. Initial disease investigations were carried out by animal health workers and followed up by an NGO veterinarian or a VSFB veterinarian. Samples collected during investigations were forwarded to the National Veterinary Research Centre, Kenya Agricultural Research Institute, Kenya or to the World Rinderpest Reference Laboratory, Pirbright, United Kingdom for laboratory diagnosis.

#### **Active Surveillance**

A method of active clinical surveillance was developed for use by AHAs. They visited cattle camps, villages and markets and carried out interviews with livestock keepers or traders, and then examined their cattle for signs of disease.

Areas of high rinderpest risk were identified during participatory mapping exercises with animal health workers. Active disease searches were carried out in these areas using participatory disease search (PDS) methods (6) and conventional surveillance techniques. PDS teams were led by one of the VSFB veterinarians who had received training in Participatory Epidemiology (1) and included NGO veterinarians, AHAs and CAHWs.

#### **Results**

The surveillance system developed has succeeded in maintaining rinderpest outbreak emergency preparedness and carrying out the passive and active surveillance required for verification of rinderpest eradication (7).

An average of 89 disease outbreak reports (all species, any disease) were received each year from 2002 to 2004, of which an average of 18 per year were rinderpest-related; specific reports of rinderpest, reports of clinical signs of rinderpest, or reports of high mortality due to unknown disease. The rinderpest-related reports came from a wide range of stakeholders (Table 1). Initial investigations were carried out by AHAs, field veterinarians or VSFB veterinarians. Where necessary a VSFB veterinarian carried out a follow up investigation after an initial investigation to assist in clarifying the cause of the report. Samples for laboratory diagnosis were collected in more than half of the investigations. Out of the 54 rinderpest-related reports in 2002 to 2004, no rinderpest disease was detected. 43 reports were due to another disease problem such as foot and mouth

**Table 1**

**Stakeholder participation in reporting and investigation of rinderpest-related disease outbreaks (2002-2004)**

<b>Stakeholder</b>	<b>Reported by</b>	<b>Initial investigation</b>	<b>Follow up by VSFB vet</b>	<b>Samples collected</b>
VSFB Veterinarian		18		12
Field veterinarian	10	15	2	7
AHA	24	21	7	9
CAHW	3			
Livestock keeper	14			
Non-livestock NGO	3			
<b>Total</b>	<b>54</b>	<b>54</b>	<b>7</b>	<b>28</b>

**Table 2**  
**Active disease searches**

State	County	Ethnic group	No. villages/ cattle camps visited	No. group interviews	No. herds	No. cattle examined	Year rinderpest last seen in area
Northern Bahr el Ghazal	Gogrial	Dinka	10	15	77	18,000	1994
Northern Bahr el Ghazal	Aweil West and North	Dinka	4	6	35	8,813	1996
Northern Bahr el Ghazal	Wau	Dinka, Luo	3	8	12	9,000	1994
Jonglei	Pibor	Murle, Jie, Toposa	8	12	234	142,513	2000 <sup>7</sup>
Unity	Latjor	Nuer	1	2	50	5,000	1995
Jonglei	Wuror	Nuer	7	5	7	2,000	1994
Eastern Equatoria	Kapoeta, Budi	Toposa, Didinga, Buya	14	10	618	52,500	2000 <sup>1</sup>
Eastern Equatoria	Budi	Buya	3	3	1	11,500	1996
Eastern Equatoria	Torit	Lango, Logir	7	9	1	1,600	2003 <sup>8</sup>
<b>Total</b>		<b>10</b>	<b>57</b>	<b>70</b>	<b>1,035</b>	<b>250,926</b>	

disease, haemorrhagic septicaemia or malignant catarrhal fever. In 4 cases no disease was found. In 3 cases livestock keepers reported due to fear of rinderpest coming from a neighbouring area. There were 4 individual cases of rinderpest-like disease that were negative for rinderpest on laboratory testing.

During the period May 2002 to June 2004, AHAs carried out 3,633 cattle camp surveillance visits and 426 visits were made to 33 different markets. A high proportion of AHAs participated and approximately 25% of the cattle population were surveyed. It was very rare for rinderpest to be mentioned as a problem by the livestock keepers or traders. In the few cases when it was mentioned the livestock keeper said it was not currently present but he feared that it would return to the area.

In 2003 and 2004, nine active disease searches were carried out in high rinderpest risk areas (Table 2). Each exercise lasted 1-3 weeks and involved group interviews with livestock keepers in the cattle camps or villages of the defined area, and use of participatory methods such as timelines, mapping and ranking of disease problems. Their herds were clinically examined and samples collected from sick cattle. No clinical rinderpest was found and a few reports of recent outbreaks were investigated.

## Discussion

Despite the many environmental, social, political and economic challenges faced, by use of adaptive

and flexible approaches and methodologies the project has succeeded in facilitating and supporting rinderpest surveillance in the SPLM-administered areas of southern Sudan in the absence of conventional animal health services and with a limited number of veterinarians. The data collected has contributed to that collected by FMOAR&F in the government-administered areas and provides evidence that rinderpest may have been eliminated from southern Sudan (7). The rinderpest eradication process is now in its final phase of sero-surveillance during 2005 to 2007 to verify the absence of the virus.

The goal of eradication of rinderpest was shared by all stakeholders from the livestock keepers, local authorities and animal health workers to the international community, making it relatively easy to mobilize people. The project prioritized communication, information-sharing and coordination to encourage the involvement and participation of all stakeholders. Crucial to the success of the project was the extensive network of CAHWs and AHAs that were provided with ongoing support from NGOs and FAO for basic animal health service delivery. These people were as essential link between the livestock keepers and the VSFB veterinarians. Practical training of these animal health workers was very important to provide them with the skills to fulfill their roles in surveillance. The existence of a large body of baseline information gathered mainly using participatory methods since the start of the OLS livestock programme was essential

for efficient targeting of activities and resources. This was built on during implementation to ensure a good understanding of the livestock situation. Both FMOAR&F and VSFB, supported by AU-IBAR and FAO, were proactive in co-ordinating activities in their respective areas of coverage and in promoting dialogue between veterinarians working on different sides of the conflict.



Figure 3:

A young boy with calf affected by rinderpest during the last confirmed outbreak in 1998, Torit County.

## Conclusion

Livestock disease control is identified as a major priority by pastoralist communities, especially in situations of chronic conflict where animal health services have been disrupted causing increased disease prevalence. In order to deliver effective disease control it is important to have a good understanding of the local context, using participatory methods, to ensure that an appropriate methodology is used. For southern Sudan, where animal health services were almost non-existent, the establishment of community-based animal health services made up of a network of CAHWs supported by AHAs and a small number of veterinarians ensured widespread access to basic treatments and vaccination and good coverage for disease surveillance. Working within this network, the project focused on training of personnel and their follow up, provision of essential appropriate technology, good communication and co-ordination between stakeholders.

With the signing of the peace agreement between north and south Sudan in January 2005, VSFB and other relief agencies are supporting the Government of Southern Sudan's Secretariat of Agriculture and Animal Resources as they develop policies and strategies for the future development of the livestock sector. It is envisaged that the community-based animal health service and the disease surveillance system will be integrated into the future animal health service delivery system.



Figure 4:

AHAs carrying out surveillance in a cattle camp, Tonj County.

## Acknowledgements

The Fight Against Lineage One Rinderpest Virus Project for Southern Sudan is funded and supported technically by the AU-IBAR PACE Programme, funded by the European Union. The project is carried out in collaboration with the SPLM Secretariat of Agriculture and Animal Resources and co-ordinates with the PACE Sudan project of the Federal Ministry of Animal Resources and Fisheries, Government of Sudan. The contributions made towards the eradication of

rinderpest by the southern Sudanese animal health workers and livestock keepers, and the indigenous and international NGOs and FAO who support livestock activities in southern Sudan are gratefully acknowledged.

*This paper does not represent the official position of the European Commission and does not commit the European Commission in any way.*

<sup>7</sup> National Rural Support Program, 46 Aghan Khan Road, F 6/4, Islamabad, Pakistan

<sup>8</sup> Animal Health Service, Food and Agriculture Organization of the United Nations, Viale delle Terme di Caracalla, 00100 Rome, Italy

<sup>9</sup> 8 South Terrace, Littlehampton, West Sussex, BN17 5NZ, United Kingdom

<sup>10</sup> This is consistent with an unconfirmed outbreak of rinderpest-like disease that was reported in 2000

<sup>11</sup> The outbreak was investigated in 2003 and diagnosed as East Coast Fever. Previous reported outbreaks were in 1997-1998

## Literature

1. Catley A., 2005, Participatory epidemiology: a guide for trainers. African Union/Interafrican Bureau for Animal Resources, Nairobi, 2005.
2. Jones B.A., 2001, Review of rinderpest control in southern Sudan 1989-2000. CAPE Unit, PACE, OAU-IBAR, March 2001.
3. Jones B.A., Deemer B., Leyland T.J., Mogga W. & Stem E., 1998, Community-based Animal health Services in Southern Sudan; the Experience and Future. Proceedings of the IXth International Conference of Association of Institutions of Tropical Veterinary Medicine, p 107-133. Harare, Zimbabwe.
4. Jones B.A., Araba A.A., Koskei P. & Letereuwa S., 2002a, Experiences with community-based and participatory methods for rinderpest surveillance in parts of southern Sudan. Proceedings of Primary Animal Health Care in the 21<sup>st</sup> Century: Shaping the Rules, Policies and Institutions, Mombassa, Kenya. PACE, AU-IBAR.
5. Jones B.A., Araba A.A., Koskei P. & Letereuwa S., 2002b, Doing it for themselves: how communities developed messages and communication methods for rinderpest eradication in southern Sudan. PLA Notes 45 Special Edition on Community-based animal health care, pages 37-41. IIED, London.
6. Mariner, J.C., 2001, Manual on participatory epidemiology: methods for the collection of action-oriented epidemiological intelligence. FAO Animal Health Manual n°10. FAO, Rome.
7. Republic of Sudan, 2004, Application for freedom from rinderpest disease on a zonal basis. Background and results of the control and surveillance of rinderpest in Sudan to be submitted to OIE, Republic of Sudan Federal Ministry of Animal Resources and Fisheries, October 2004.
8. UNICEF/OLS, 1997, A training manual for community animal health workers (CAHWs) in southern Sudan.

## CONCLUSION OF SYMPOSIUM VSF

### GENERAL CONCLUSION OF SYMPOSIUM VSF

\*E. Thys

First of all, I wish to thank all the different speakers who presented very interesting contributions related the topic of this symposium. We had a large panel of information, which I would like to try to summarize in a few words.

Briefly what can we learn from what has been said today? The first point is that the contributions of livestock - as we all already know but which still needs to be supported by better and clear arguments – livestock's contribution thus is not only milk and meat for the global market but a lot more than that.

Indeed, there is a broad range of other benefits related to livestock keeping like animal energy, animal traction, social and cultural purposes, etc. Increased livelihoods and income are assets that indirectly provide means to the people to ensure food-security. With the money earned, the livestock-keepers can buy other foodstuff.

Of course, there are constraints related to livestock keeping: like problems with range management, environments and with husbandry of large and small species.

Animal health issues are important too and unfortunately not yet solved. Other constrains which cannot be neglected are those related to livestock-man interactions and to the conflicts arising from different expectations. Working and eradicating diseases in conflicts zones represent major difficulties.

Today many methodological tools and conceptual frameworks were presented, which help us in better understanding different situations. Indeed, we need such tools to analyse the various situations. Today somebody asked for a global, exhaustive and definitive solution to alleviate problems related to animal production and animal health. This is of course not possible because of the different situations in each country or region that we have to take into account.

One example we heard was the case of Uganda. Poultry production is in our minds often linked to women and considered a good tool to help female producers increase their revenue. However in the presented case in Uganda this seems to be changing. Men are now taking over the improved and current more industrialized poultry activities as they see the benefits that can be derived from it. This is a real paradigm shift.

Another very important lesson from today is the importance of participation. All types of participation to gather information are to be considered in the analysis of a situation. But this is also a very difficult democratic exercise for somebody to explain accurately what he or she really aims for, from the side of the livestock keepers as well as from the side of the veterinarians, and to merge all this information. Participatory epidemiology is in that frame a very useful tool but still necessitates further investigation to validate some methodological aspects, even if quite a bit of work was already done in validating how farmer's diagnosis agrees with vets and clinical diagnosis, and in relation to laboratory data.

So you are leaving this room with a large set of tools. These tools are needed to increase the awareness of policymakers in the North as well as in the South, but I should say even more so in the South. We need to ensure that livestock – that relatively small word 'livestock' - is included in the Poverty Reduction Strategy Papers (PRSP). We heard today that a lot of countries, even those for whom livestock represents an important part of the national economy, have not included livestock targets in their PRSP's. With the tools here presented you can help locally to elaborate strategies to improve livestock to the poor, increase food security, reduce poverty and improve livelihoods for the benefit of livestock keepers and the global society.

Thank you very much.

*Dr. Eric Thys  
MSc Coordinator –Department of animal Health  
Institute of Tropical Medicine  
15 th April 2005*

---

\*DVM, PhD

MSc Coordinator –Department of animal Health  
Institute of Tropical Medicine

Nationalestraat 155, 2000 Antwerpen, Belgium

Tel: 32 3 2476392 Fax: 32 3 2476268 E-mail: ethys@itg.be

## CONTENTS

### EDITORIAL

Introduction – 10th anniversary of VSF Belgium <b>M. Onclin</b> .....	1
--	---

The importance of livestock in the EU development policies <b>P. Vialatte</b> .....	3
--	---

### ORIGINAL ARTICLES

#### Session 1 - Livestock in development strategies

Contribution of livestock development to poverty reduction in pastoral areas of the horn of Africa <b>D. Abebe</b> .....	5
---	---

Supporting endogenous livestock development (ELD): an alternative vision of livestock development for the poor <b>K.V. Hooft &amp; J. Wanyama</b> .....	11
--	----

Enhancing the role of livestock in poverty reduction strategies: analytical approaches and applications (Abstract) <b>A. Freeman &amp; B. Minjauw</b> .....	15
--	----

#### Session 2 - Livestock and Food Security

Livestock and development: global trends and local realities in food security <b>C.C. Jost</b> .....	17
---	----

Livestock breeding and food security in today's Palestinian Territories <b>N. Sinjilawie &amp; M. Nori</b> .....	21
---	----

Positioning agro-pastoral women in livestock production: the link between socio-economic factors and improved household food security <b>B. Esenu, S. Ossiya, D. Serunkuma, J. Oluka, D. Alin, B. Owesigire, G. Ebiyau &amp; B. Olokojo</b> .....	28
--	----

#### Session 3 - Livestock and Livelihoods

Integrated poverty assessment for livestock promotion: The case of Vietnam <b>J. Otte, D. Roland-Holst, S. Kazybayeva, &amp; I. Maltsoglou</b> .....	33
---	----

Goats, a pathway to food security: case of pastoral women groups in southern Ethiopia <b>G. Gebru, S. Desta, D.L. Coppock &amp; S. Tezerra</b> .....	38
---	----

Local poultry production systems in Northern Kwazulu Natal, South Africa <b>M. Naidoo</b> .....	42
--	----

#### Session 4 - Livestock programs in conflict area

Institutionalization of participatory disease surveillance in Pakistan <b>J.C. Mariner, M. Hussein, M. A. Izal, R. H. Raja, Q. Ali, P. Roeder &amp; P. Taylor</b> .....	47
--	----

Vétérinaires sans Frontières (VSF) projects in Sahrawi refugee camps: livestock management and veterinary services between emergency and development <b>A. Broglia, A.E. Abdullah &amp; S. Di Lello</b> .....	53
--	----

Facilitating animal health service delivery in a chronic conflict situation; how rinderpest is being eliminated from Southern Sudan <b>B.A. Jones, S.P. Letereuwa, A.A. Araba &amp; K.M. Nimaya</b> .....	58
--	----

### Conclusion of Symposium VSF

<b>E. Thys</b> .....	64
----------------------	----

**Redaction Committee:** Els Bedert, Bart Balis, Madeleine Onclin, Miriam Bastos Da Silva & Eric Thys  
**Acknowledgement:** J.-L.Hornick for the corrections of text in French.



**DIERENARTSEN | VETERINAIRES**  
**ZONDER GRENZEN | SANS FRONTIERES**

## Mission Statement

### Our Vision

Veterinarians can improve living conditions on our planet.

### We believe that:

- Each person has the right to decent living conditions and that international solidarity is of the utmost importance.
- The earth, livestock and people are inextricably linked in a chain where the animal is a factor in sustainable development.
- Development gives increased choices to beneficiary populations.

Our Mission “To improve the well-being of vulnerable populations in developing countries, by improving animal health and production”

### Our Approach: To work in partnership, to train, to empower, to raise awareness

- To establish partnerships based on mutual respect to further a common goal.
- To put ourselves at the service of vulnerable populations in a constant process of learning
- To train and to empower communities and to strengthen local partners involved in livestock.
- To respect the environment, local culture and laws, human rights, traditional knowledge, animal welfare.
- To use ethical approaches, participatory and culturally relevant technology to achieve our goals.
- To sensitise the wider public to development issues, emphasizing on the role of the Animal as key factor for sustainable development.
- To implement projects in both development and emergency contexts.

### Our values: « Respect, Transparency, Sustainability »

- VSF-B always follows its code of ethics.
- VSF-B's management is transparent and we are accountable to stakeholders
- The activities initiated by VSF Belgium and partners are sustainable.
- VSF-B is an equal opportunity employer concerned with staff development.

### Our structure : « Non profit organization registered as NGO »

- VSF-B is a non-profit organisation officially registered as an NGO by Belgian government and several international organisations and African governments.
- VSF-B has a professional staff; international and national.
- VSF-B is a member of VSF Europa